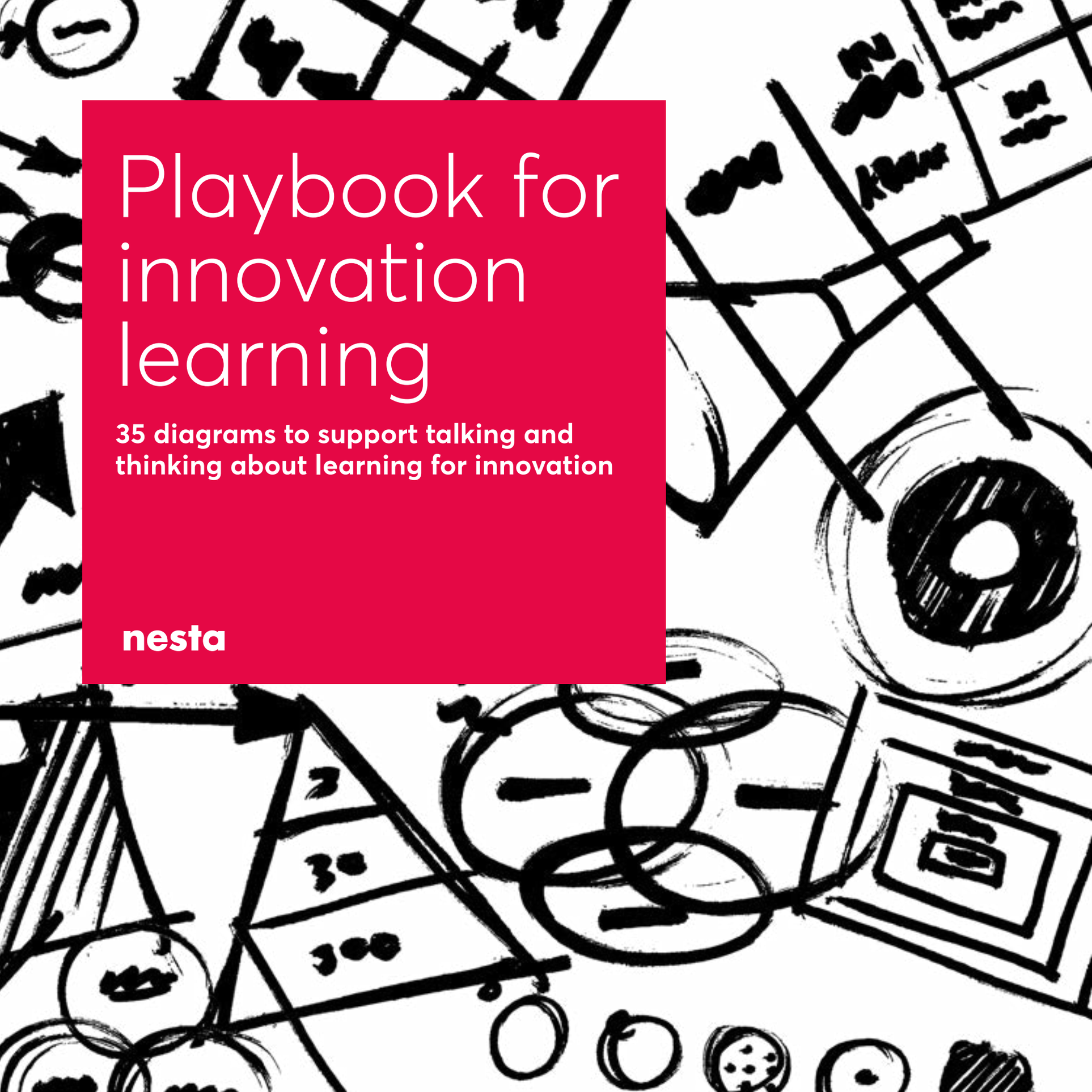

Playbook for innovation learning

35 diagrams to support talking and thinking about learning for innovation

nesta

Acknowledgements

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About Nesta

Nesta is a global innovation foundation. We back new ideas to tackle the big challenges of our time. We use our knowledge, networks, funding and skills - working in partnership with others, including governments, businesses and charities. We are a UK charity but work all over the world, supported by a financial endowment.

About Nesta's Innovation Skills team

We help people become better innovators for the common good. We know there is a lot of hot air when it comes to talking about innovation, so we want to cut through this and help people in simple, practical ways. We do this by providing content, learning experiences and strategic support to improve innovation skills and embed them into everyday practice.

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Playbook for innovation learning

35 diagrams to support talking and thinking about learning for innovation

Bas Leurs & Isobel Roberts, April 2018

Preface

Background

Over the past three years, in Nesta's Innovation Skills team we've had numerous conversations with colleagues, partners, participants and practitioners about building innovation capacity for the public and development sector. Whether in a design workshop, briefing or strategy session – or just an informal conversation – we often found ourselves quickly sketching a model, or pulling out a diagram from a slide deck, or a printed copy of a deck (as shown in the photo) to support the conversation, stimulate discussion or challenge thinking on learning for innovation.

We have been collecting these frequently used diagrams, models and frameworks, and are now publishing them in this 'Playbook for innovation learning'[1]. Alongside each of the 35 diagrams, we've added a short description explaining their purpose and background and how we use them to help others think about and discuss learning for innovation.

Who might find this book useful?

This is a practitioners book, it is written for innovation practitioners who want to spread innovation skills, methods and tools. When we wrote this book we had practitioners with several years of experience in mind, but we believe that newcomers may also find it useful. We see that innovation practitioners, at some point in time, get involved in – or tasked with – the design and delivery of a learning offer or capacity building programme, but might not have a background or training in learning design. We made this book to provide them with a foundation and structure for making innovation learning decisions – including designing more effective learning experiences, identifying and articulating learning needs, pitching a learning offer at the right level, connecting a team or innovation strategy with learning and development, etc.

This book is not meant as an introduction to learning or instructional design, but instead we see it more as a toolkit. If you are looking for an introduction to learning design, we highly recommend Julie Dirksen's book *Design for How People Learn*.

How to use this book

We often use these diagrams in a non-linear, interactive way, going back and forth between them, or combining them, and we suggest you might use them in a similar way. While there isn't a comprehensive narrative that connects all these diagrams in a linear way, we have grouped them into five categories to make browsing easier, although you may notice that some diagrams fit into more than one category. These categories are:

- Learning processes & strategy
- Competencies & expertise levels
- Content & communication
- Design & innovation processes
- Team & innovation strategy

Please bear in mind that this book is not an exhaustive list of diagrams. We are conscious that there are many more models, concepts and frameworks on learning and innovation out there, and we are also well aware that some models included here are not supported by rigorous academic research. Instead, we have selected those that in our experience have prompted reflective conversations and inspired action. These models alone are not recipes for success, instead consider them as the seasoning to add flavour and depth to your discussions.

This is also not a static document; as our thinking on learning for innovation develops, we may add or revise diagrams and publish updated versions of this book. We also invite you – particularly the visual thinkers among us – to customise these diagrams to your own needs. You may even generate your own diagrams whilst in discussion, and over time create your own playbook.

If you'd like to know more, or send us feedback and suggestions, please contact us on: skills@nesta.org.uk

Nesta's Brenton Caffin shares Lafley and Martin's five strategic questions in a session with the Portuguese government's LabX team.

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Clarifying design and innovation processes and putting them into practice

Team & innovation strategy

Thinking about and setting up a strategy for your team or innovation approach

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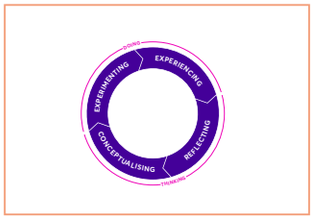

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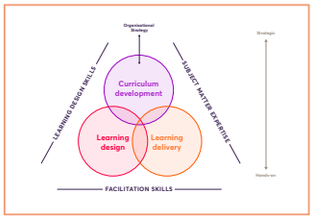

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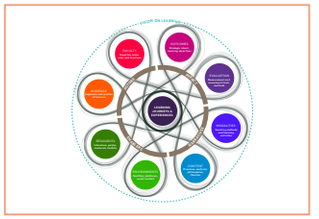

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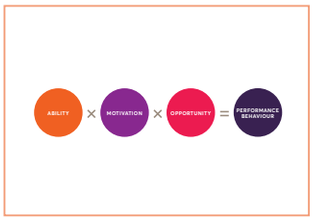

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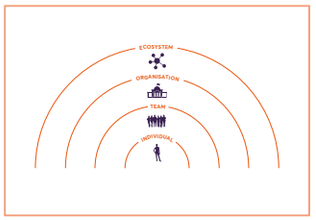

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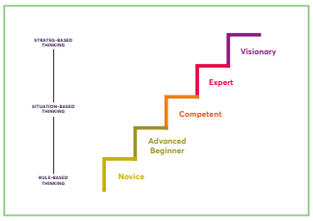
Competencies & expertise levels



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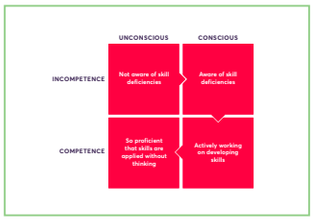

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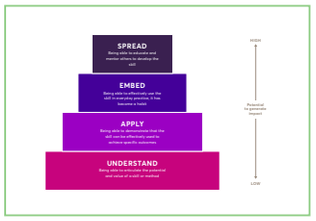

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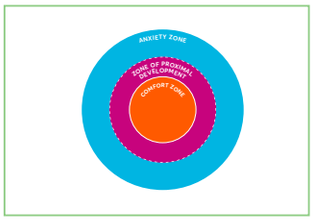

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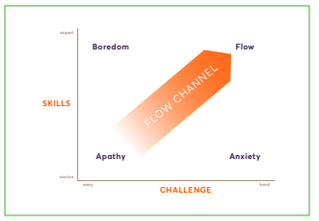

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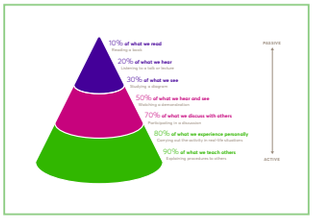

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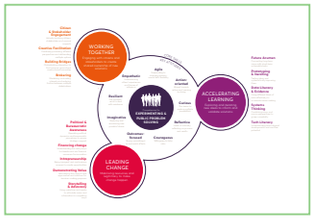

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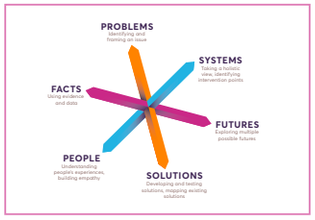
Content & communication



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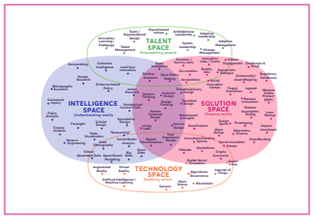

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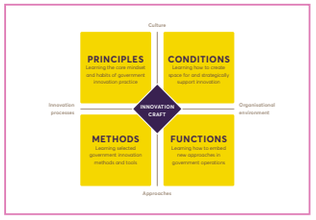

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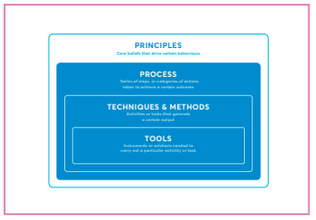

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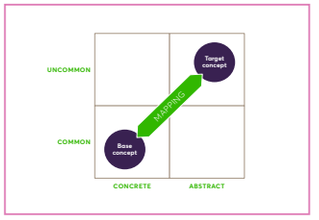

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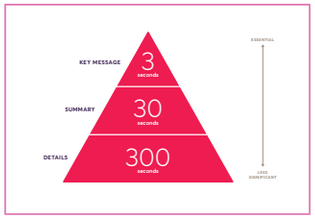

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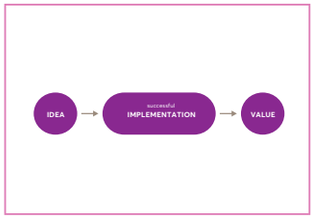

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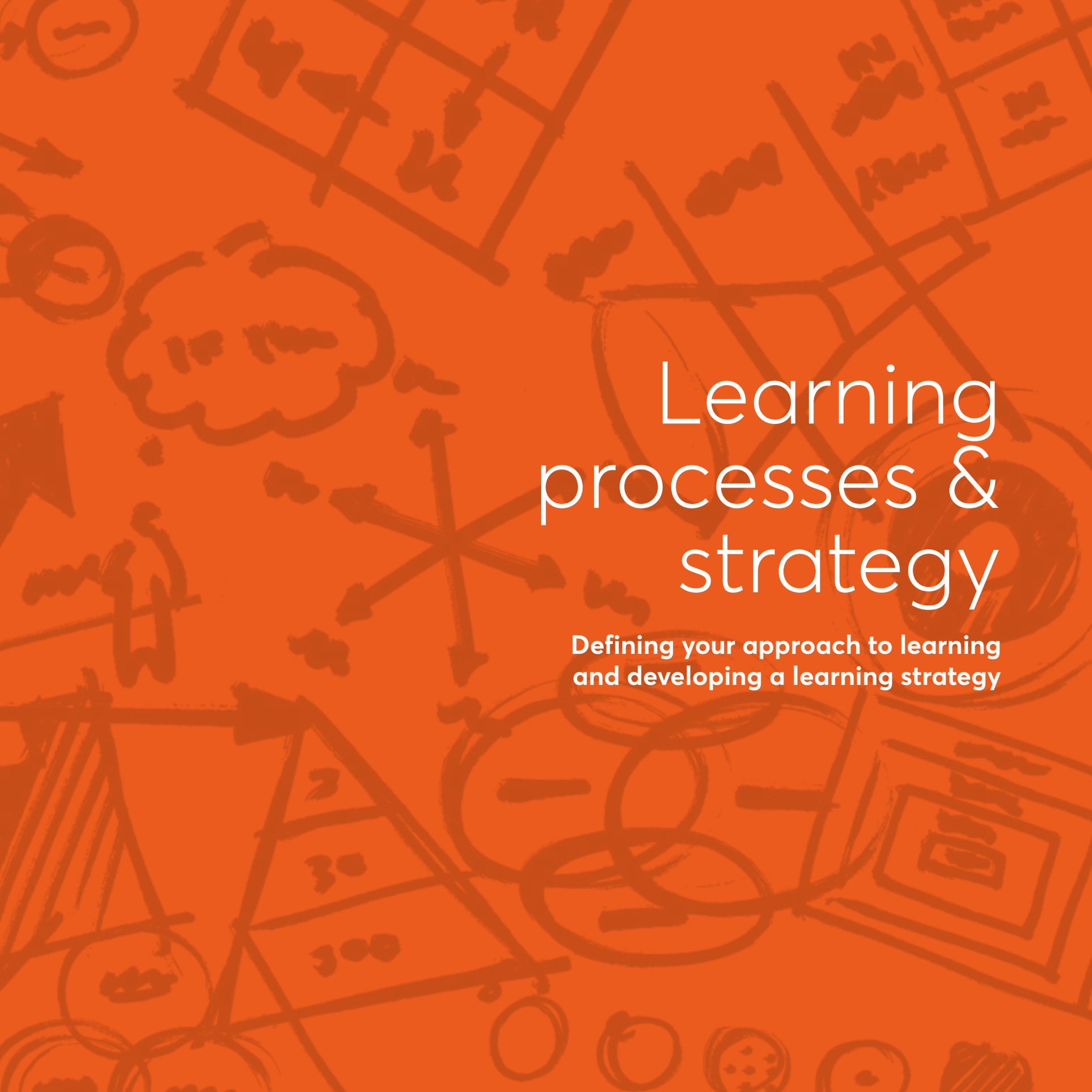
Design & innovation processes



Learning processes & strategy

Defining your approach to learning and developing a learning strategy

Innovation Skills learning journey

Three stages of learning for innovation to become part of daily practice

What is it?

The Innovation Skills learning journey is a high-level overview of the stages that a learner goes through to become more proficient at adopting new skills, putting them into practice and using them to innovate. This journey has three key stages that ultimately aim to create a sustainable change in behaviour: for innovation to become a habit and for innovation methods and tools to be fully embedded in daily practice.

The first stage focuses on raising awareness. A typical learning session might include a one or two-hour taster session on a specific method or principle, or could use case studies or examples to contextualise and provide evidence for using innovation. In the second stage, making it happen, learners develop skills to tackle a social or public challenge. This involves a deeper dive, for example a four-day masterclass, that helps learners to build confidence and equips them with practical skills to use innovation methods and tools in their own work. The third stage focuses on spreading these skills, methods and tools, and integrating them into daily practice. Typical learning activities might include a mentoring programme or building advocacy to help learners increase organisational readiness for innovation.

Why or how would you use it?

We find this diagram helpful for scoping briefings with our clients, mapping out learning programmes[2] or considering how to structure our learning portfolio. It helps us to formulate learning objectives for a session or programme (focusing on either understanding, using or embedding), to identify learning needs, and to clarify our aspirations and intended outcomes (behaviour change).

Typical questions that prompt using this diagram

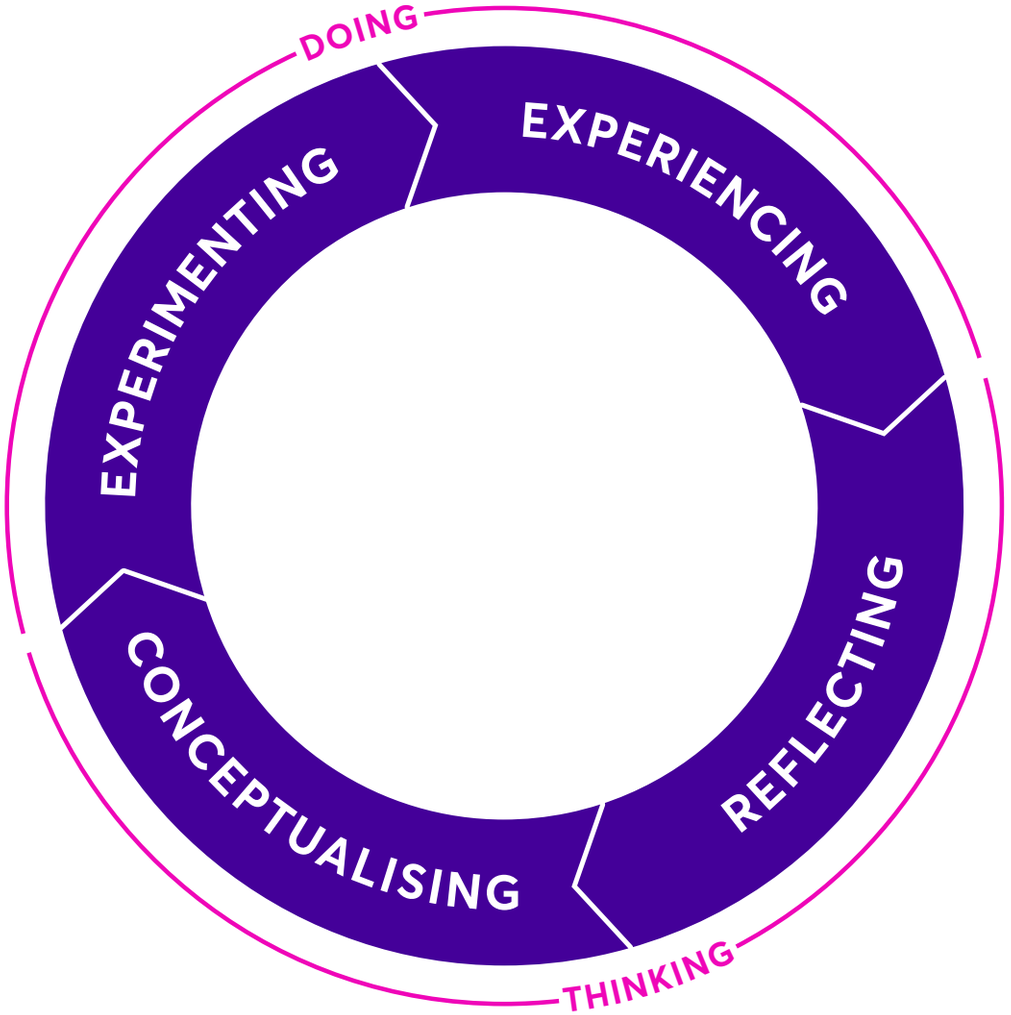
How should you position your learning activities? What are you trying to achieve with your learning session? What should you focus on? What might a wider learning programme look like?

Background

Adopting innovation skills and using them in practice involves a change in behaviours and habits. It will come as no surprise that this diagram is based on a behaviour change model, 'The Transtheoretical Model' (or 'Stages of Change'), which was developed by DiClemente and Prochaska in the late 1970s.[3] This model integrates various theories into one overarching theory of change – hence, the name Transtheoretical – that can be applied to a variety of behaviours and contexts.

Experiential learning cycle (Kolb)

A learning process that puts experience at the heart of learning and development



Based on Kolb (1984)

What is it?

The experiential learning cycle developed by Kolb[4] describes learning as a continuous process grounded in experience. The cycle has four stages, or learning activities:

1. **Experimenting** with tools, methods and key concepts, or testing hypotheses.
2. **Experiencing** how these work; what works and what doesn't.
3. **Reflecting** on these experiences and identifying discrepancies between experience and (conceptual) understanding.
4. **Conceptualising** by forming (new) concepts, developing broad principles, general rules of thumb and 'success models' for what works and how.

Why or how would you use it?

We believe that innovation skills cannot be learned purely from a textbook; instead we believe that learners should experience how innovation tools and methods help to solve problems by actively engaging with them through real-life or simulated situations. In this pedagogy of 'learning by doing', experience is seen as the source of development, and it is particularly 'reflection on doing' that catalyses learning.

Kolb's learning cycle offers a practical framework to plan and structure a learning session or programme. Ideally, for a learning session to be effective, a learner should go through all four stages of the cycle. However, we often see that learning design defaults to conceptual learning (e.g. lectures, panel discussions) with no practical component to help learners understand how things work in practice. Or we see the contrary: training sessions with only hands-on exercises and no reflection or conceptual learning to help learners understand the bigger picture. For that reason we suggest touching on all four stages of the cycle, starting with any of them. You might go through the full cycle in less than an hour for a quick taster session (taking at least 10 minutes for each activity), or you might go through the cycle a few times over a period of days, weeks or months.

Where to start might depend on the learning styles of your audience. In his work Kolb described four learning styles – feeling and watching, watching and thinking, doing and thinking, doing and feeling – but these are often too granular to work with. Instead, we condense them into two groups: people who think first (reflect and conceptualise) and people who act first (experiment and experience). You might start with an activity that matches your learners' natural inclination towards one of these styles, but you might also choose to do the opposite and deliberately get them out of their comfort zone. For example, for a group of 'think first' learners, you could ask them to build a prototype before explaining the key concepts of prototyping. For a group of 'act first' learners, you could start by reflecting on their previous experiences of testing ideas, introducing key concepts of prototyping and then letting them experiment and experience it.

Typical questions that prompt using this diagram

What learning activities should you consider for your session? What learning activities constitute an effective learning experience? How do you accelerate learning from experience?

Background

Kolb's experiential learning theory builds largely on the work of John Dewey, Kurt Lewin and Jean Piaget. His model has often been used to study or describe various aspects of learning, including the theory and practice of adult education, informal education, vocational learning, competency based and lifelong learning.

The essentials of learning experience design

Key elements to consider when planning a learning course or activity

What is it?

This diagram features the three most essential elements of learning design: the learning objectives, the learner profile, and the outline of the learning activities. These help you create a solid foundation for your courses or programmes.

Why or how would you use it?

We often use this diagram in our initial conversations when we're asked to help with learning design. It shifts the conversation from only activities to include learning objectives and learning needs, helping people to get the 'basics' right and to design more effective and engaging learning experiences.

To use this diagram, follow these three steps:

1. We suggest starting by defining the learning objectives. This may feel counterintuitive, but it is easier to first define your end goal and then work backwards. When starting with learning activities, we often see that people lose sight of the intended learning outcomes.
2. Next, focus on developing a profile of the learners: identify their needs and existing expertise levels. Once you have the learning objectives and the learners' expertise level, you have basically identified the learning gap.
3. Finally, outline the learning activities that you think will fill that gap.

Below are some more tips to help with each stage:

Step 1: Defining learning objectives

Begin by envisaging when learners leave the room, what should be different? Imagine this as a movie in your mind. Then try to formulate your learning objectives as demonstrable behaviours. It's helpful to start with: "After the session, learners are able to…". A good example might be: "After the session, learners are able to articulate the three key principles of HCD", as this includes a demonstrable behaviour that you can observe people doing: articulating it. A less effective learning objective would be: "After the session, learners know the three key principles of HCD", as knowing is an internal process that cannot be observed directly, and thus it is unclear if the learner actually knows the three principles.

Step 2: Developing the learner profile

In order to develop a profile of the learners, you need to find out more about them by identifying their specific learning needs; what prior knowledge and experience they have, their expertise level, and their learning preferences and attitudes towards the main subject. When they walk into the room, what exercises could they do immediately and what might they struggle with? What attitudes do they have towards the key subjects; are they skeptical, interested or eager to learn? And what is their learning style; do they 'think first' or 'act first'? Some learners like to learn about key concepts before they take action, whereas others prefer to try things out and then reflect and conceptualise.[5]

Step 3: Outlining the learning activities

You should consider a variety of learning activities. For example, using only lecturing would likely be uninspiring and wouldn't allow learners to experience how a method works in practice. Similarly, doing just hands-on exercises wouldn't help learners to understand the underpinning principles of the method, which would allow them to use it strategically and explain it to others. For that reason, it is advisable that your session includes all four activities from Kolb's experiential learning cycle (see page 14): (1) actively experimenting with the method, tools or materials to let learners (2) experience it (e.g. through simulations); (3) reflecting on these experiences (e.g. by discussing); and (4) conceptualising by developing principles/ models from the reflection and a supporting body of knowledge. You can start with any of these activities, but you need to include all of them to create an effective learning experience.

Typical questions that prompt using this diagram

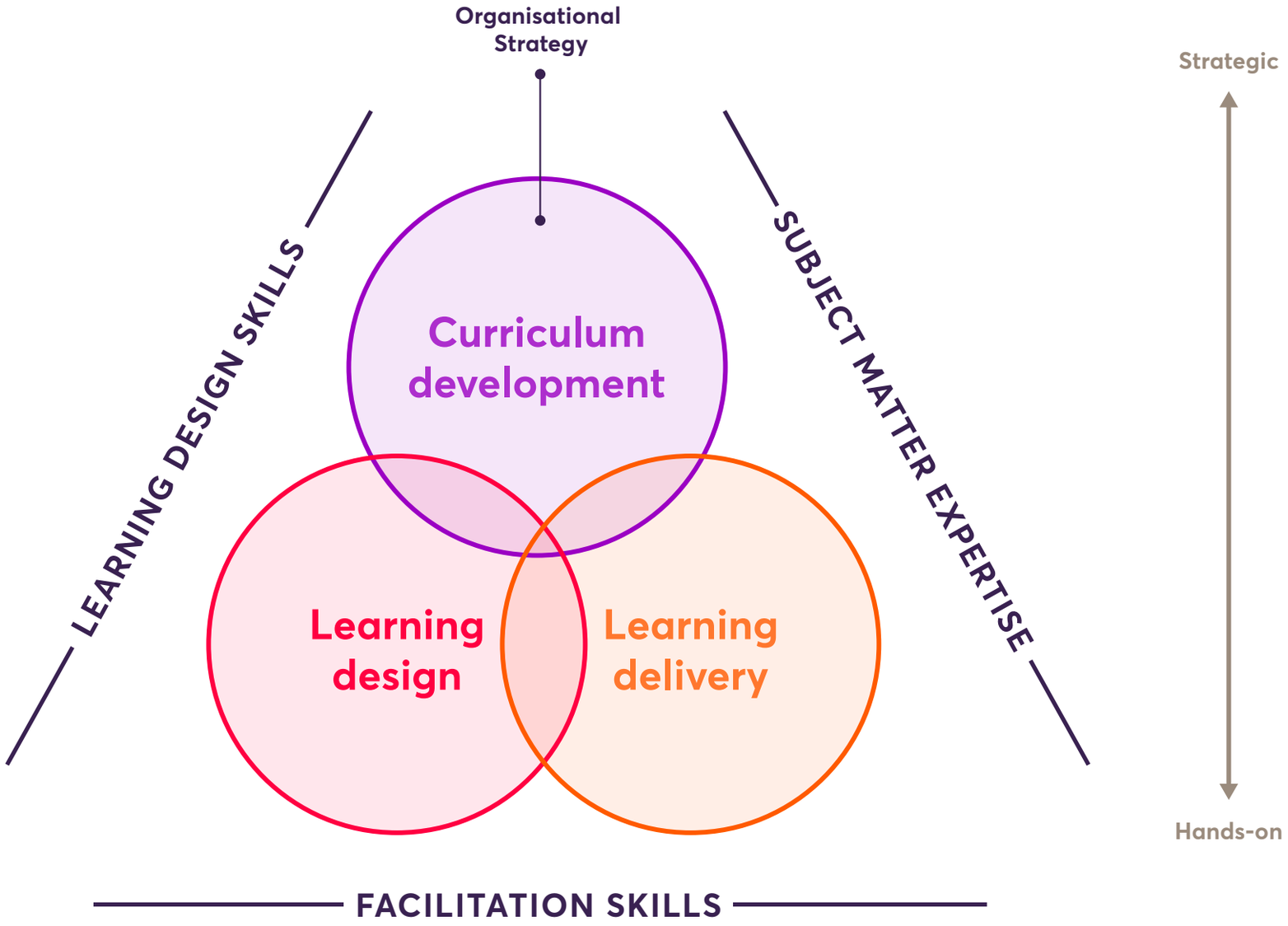
How do you design a learning experience? Where should you start? What are the essentials of learning experience design?

Background

This diagram is an extract of the 'elements of learning experience design' (see page 20) featuring only the very essentials.

Elements of learning strategy

Key areas to consider when developing a learning strategy or setting up a learning design team



What is it?

This diagram shows the three key areas that need to be considered when developing a learning strategy or setting up a capacity building function within your organisation. You need to:

- Develop a curriculum[6] that is aligned with your team or organisational strategy.
- Translate these overarching strategic objectives into a learning journey, considering how learning objectives, activities, needs, content and materials are aligned with this.
- Set up structures and systems to make sure the learning programmes are delivered.

In order to achieve these, there are three skillsets needed in your team:

1. **Learning design skills** for developing the overarching narrative of the curriculum and designing learning journeys, content and materials.
2. **Facilitation skills** for making sure that learning programmes are effectively delivered.
3. **Subject matter expertise** to add flesh to the bones.

Why or how would you use it?

This diagram is useful for going beyond designing an individual learning experience and planning a fuller programme of learning, looking at learning strategy and the skills needed to bring it to life.

To use the diagram, begin at the top by thinking about curriculum development. What is the aim of the curriculum? This should be connected to the overall strategy of the organisation, so think about how this collection of learning experiences will help achieve the strategic objectives of the organisation. This will help to define the desired outcomes of the curriculum.

Within the curriculum itself, both the design and delivery of the learning experiences – and the skills required to do them well – need to be considered. How will they be designed? What guidance will be given to the people creating them? What learning objectives will be provided? For the design, it's important to have specific learning or instructional design skills in the team in order to create effective and engaging sessions. Subject matter experts are also essential to bring knowledge and credibility to the content, and so that learners can hear from a 'more knowledgeable other' during the learning experiences themselves. For the delivery, facilitation experience is necessary as those delivering the session will need to think about the audience and how different groups may respond to different prompts or activities.

Typical questions that prompt using this diagram

What areas should you take into account when developing a learning strategy or capacity building programme? What skills do you need in a learning design and delivery team?

Background

We developed this model while working with a client to help them identify key areas they needed to look at, and what skills were required for developing and delivering their learning offer.

Elements of learning experience design

An interaction model for designing learning experiences and programmes

What is it?

This diagram presents the different elements needed to create a learning experience. It features eight elements that need to be considered – and most importantly, aligned – to make a learning experience effective. For each of these elements, the overall vision on learning will form the basis for decision making.

Why or how would you use it?

We use this diagram to help support our thinking at two different levels of learning design – the strategic level and the tactical level. The strategic level involves the high-level design of a curriculum or a learning programme. The tactical level usually focuses on the the design of an individual learning session or specific activity. The tables on the following page describe each of these elements from both the strategic and tactical perspectives, and include prompt questions to help guide your thinking.

Unlike linear learning design models, this model is interactive. This means that for both the strategic and tactical levels, you can start with any elements and then move back and forth between them. We do suggest, however, to start with defining outcomes or learning objectives and then working backwards through each of the other elements. For each one, you should consider what they require and how they are related to the other elements. You will probably iterate multiple times between the elements to get their alignment right.

Typical questions that prompt using this diagram

What aspects should you consider when designing a curriculum or learning experience? What decisions need to be made, and how are these decisions connected?

Background

This diagram is based on Hilda Taba's Interaction model[7] which was developed in the 1960s. She was a curriculum theorist and educator, and considered curriculum development as a non-linear and dynamic decision making process. Her original models comprised four elements: objectives, method, content and evaluation. Over time we have adapted some of these labels and extended her model with four other categories that we consider crucial for learning design.

Strategic

VISION ON LEARNING	**Principles** Describes the wider vision on learning and provides principles underpinning the curriculum or programme design.	• What is your 'philosophy of learning' (i.e. pedagogy)? • What are the fundamental beliefs about learning that underpin your programmes?
OUTCOMES	**Strategic intent** Describes the strategic intent of a curriculum or programme (e.g. performance improvements, cultural change, impact generation).	• What is the change, value or impact you are trying to create with your programme?
EVALUATION	**Outcome measurement** Describes evaluation methods and instruments for measuring the outcomes of the wider curriculum.	• How do you measure outcomes? • What actual value is created by the curriculum? • How do you establish a baseline?
MODALITIES	**Methods** Describes the overarching narrative and methods or modes through which learning happens (e.g. self study, or directed learning; also see page 26).	• How are you going to achieve your outcomes? • What does the mix of learning modes look like?
CONTENT	**Body of knowledge** Describes the body of knowledge or subject matter (e.g. theories, philosophies, principles, processes, methods, toolkits) underpinning a curriculum.	• What content is needed to achieve the learning outcomes? • What are the key subject areas? • What principles are crucial for effective performance?
ENVIRONMENTS	**Enablers and requirements** Describes the social, technological and physical environments. This may include learning management systems, as well as requirements for the organisational or social environment (e.g. permissive environment).	• What systems or platforms do you need to put in place to enable learning? • What is needed to create a permissive and enabling learning environment?
RESOURCES	**Assets, media and networks** Describes the wider categories of assets, media and networks (e.g. repositories, databases, knowledge systems, communities of practice) needed to enable learning.	• What resources are needed to enable or support learning? • What resources are key to achieve the intended outcomes?
AUDIENCES	**Segments** Describes segments of learners, based on, for example, needs, motivations, experience or seniority.	• Who are your key audiences? How would you segment them? • What learning needs do these segments have? • What enables them to learn? What are their barriers to learning?
FACULTY	**Sections** Identifies different sections of the faculty based on expertise, facilitation skills (e.g. instructing, mentoring, coaching) or experience.	• How is the faculty structured? • What should the faculty have in common? Where should they differ? • What roles does the faculty have?

Tactical

VISION ON LEARNING	**Guidelines and standards** Provides standards and concrete guidelines for designing a learning session or activity.	• What guidelines and standards inform your decision making around learning?
OUTCOMES	**Learning objectives** Sets out the learning objectives, specifying what learners are able to do or demonstrate after completing a session.	• What should be different when learners leave the room? • What behaviours should learners be able to demonstrate?
EVALUATION	**Skills assessment** Describes assessment tools and methods for evaluating the learning objectives. These assessments can be summative or formative.	• How do you assess learning outcomes? • What is the purpose of assessment?
MODALITIES	**Activities** Describes the learning journey and the learning activities needed to achieve the intended objectives.	• How are you going to achieve your learning objectives? • What does the learning journey look and feel like? • How do the learning activities align with the learners' needs, experience and preferences?
CONTENT	**Key messages and examples** Specifies the key messages, examples, case studies, techniques and tools that support the learning activities.	• What content is needed to achieve your learning objectives? • What are the key messages you want to get across? • What metaphors or examples might you use to help bring abstract ideas to life?
ENVIRONMENTS	**Configuration** Provides lists of books, articles, guides, tools or materials needed to enable and support learning.	• What materials or information sources will support the learning process? • What references, tools or materials are needed to achieve the learning outcomes?
RESOURCES	**Materials and literature** Describes the wider categories of assets, media and networks (e.g. repositories, databases, knowledge systems, communities of practice) needed to enable learning.	• What resources are needed to enable or support learning? • What resources are key to achieve the intended outcomes?
AUDIENCES	**Profiles** Provides detailed learner profiles, describing their individual learning needs, abilities and preferences.	• Who are the learners? • What is their background? • What are their needs, motivations and aspirations? • What skills or knowledge do they already have? • How can you build on their existing experience?
FACULTY	**Résumés** Provides detailed profiles of faculty members about their background, experience, expertise and facilitation skills.	• Who is 'teaching' what and how? • What strengths (and weaknesses) does each faculty member have? • What (facilitation) skills, experience or expertise is essential?

Nesta's Innovation Skills team pedagogy

Our vision on learning for innovation

What is it?

This diagram presents the key principles of our approach to learning and developing innovation skills. The pedagogy that supports all our learning experiences has a 'bias towards action', which is based on innovation being about taking action and actually doing things.

Why or how would you use it?

This pedagogy has been developed specifically for our work, and so you may want to ask yourself some typical prompt questions to start thinking about your own vision on learning. If you are interested in taking a bias towards action, you can use this model to think through how this approach connects to different elements of a learning experience:

Learning by doing: We believe that learning new skills is best achieved by actually doing them, so we promote hands-on exercises and immersing learners in real life situations. Letting learners experience how to make decisions in the face of ambiguity and complexity, and then letting them reflect on that process, is far more effective than mere knowledge transfer.

Learning for action: The essence of innovation is doing things differently to generate a better outcome. Impact is not created through knowledge; it results from people doing things differently. For that reason, learning objectives should be formulated as actionable goals: how is the learner going to act after finishing a course?

Learning beyond the classroom: A learning experience is more than just a face-to-face workshop. We also consider leverage points before and after the key learning activity to elongate the learning experience, and how to support learners when they are using their new skills in their daily practice.

Learning with peers, from experts: The instructors and trainers who lead our courses are role models and should have hands-on experience with the material they teach. Being confronted with a new challenge without adequate skills to tackle it can be daunting, so trainers should be able to play the role of the 'more knowledgeable other' to support learners to step out of their comfort zone.[8] In addition to this, facilitating learners to learn from their peers helps them to build each other's confidence.

Typical questions that prompt using this diagram

What is your vision on learning? What should learning look like? What are the key principles that guide you in shaping and delivering learning experiences?

Background

We developed this diagram in the Innovation Skills team to articulate our approach to learning. Our pedagogy is an ongoing conversation, but we often come back to these principles.

Modes of learning

A framework for choosing the right learning approach for your learning objectives

What is it?

When developing a curriculum or learning strategy, one of the key challenges is to find the right learning mode to fit the learner's needs. This diagram features four key different learning modes that can be used to develop a learning experience or programme depending on the needs of the learner.

It's first important to acknowledge the difference between what's teachable and what's learnable. We sometimes assume that everything is teachable, whereas in fact much learning happens outside of training in the real world. This is particularly the case with innovation, as it requires a set of complex skills and in reality deals with a lot of uncertainty. Much of the decision making is about the specific context, so there are often no pre-defined solutions or methods for how things work. We believe that innovation skills are typically skills that are best learned in practice.[9]

How or why would you use it?

We usually draw a distinction between learning 'about practice' for the skills that we consider teachable, and learning 'in practice' for the skills that we believe are only learnable:

Learning about practice: this focuses on using skills or methods at a basic level, building confidence, and developing some understanding of the value of a method or tool. It often involves explicit knowledge, practices and methods that are well understood and codified, and straightforward to train other people in. Learning about practice often happens away from actual day-to-day practice.

Learning in practice: this involves learning tricks of the trade that are not well understood or codified; it is tacit or embodied knowledge that learners develop through exposure to experience with different situations. It needs to be learned through real-life situations.

These categories of learning can be self-directed – initiated and completed by the learner – or directed – stimulated or facilitated by a teacher, mentor, etc. Combining these different elements leads to the four modes of learning:

1. **Self directed learning about practice:** learning that people can do at their own pace, such as online courses (e.g. DIY Learn), practical guides (e.g. Nesta's practice guide series), toolkits (e.g. DIY Toolkit) or reading exercises.
2. **Directed learning about practice:** face-to-face learning, where participants can learn about a tool or method from a 'more knowledgeable other', often through a simulation exercise.
3. **Directed learning in practice:** learning in real life situations, where learners are supported by a 'more knowledgeable other' through, for example, a mentoring programme or reflection exercises.
4. **Self or undirected learning in practice:** informal learning, which is experience based learning that happens on the job. The learner might not even be aware of the fact that they are learning until they reflect on it. In this process, learners might be supported by and learn from their peers.

Typical questions that prompt using this diagram

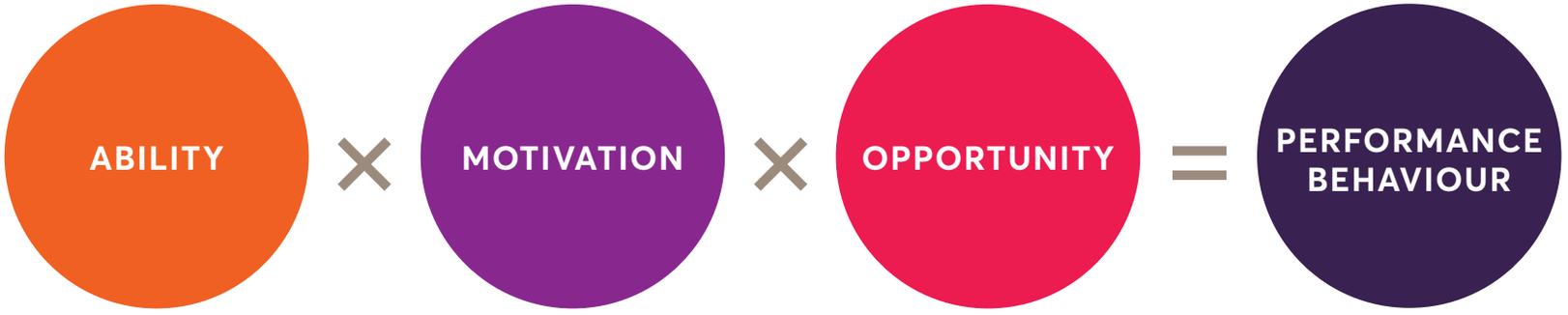
What different modes of learning should you consider and to what purpose? What is teachable and what is learnable? What modes of learning can happen within and beyond the classroom?

Background

We developed this diagram to support our decision making in curriculum development. It is similar to the 70:20:10 model for learning and development, which was developed by Michael Lombardo and Robert Eichinger.[10] These authors suggest that, as a rule of thumb, 70% of learning is informal and happens on the job, 20% is stimulated by social learning and 10% occurs through formal training or learning interventions. These numbers are broad indicators and not supported with robust evidence.[11] However, for developing innovation skills, embedding learning in practice seems to be crucial.[12]

AMO framework

The key requirements for people to be able to put innovation into action



Based on Hutchinson (2013) and Burd & Hallsworth (2016)

What is it?

This diagram describes the key elements to consider when thinking about what is needed for people to innovate. As a Skills team we often focus on ability, but it requires more than that. These three elements are essential to make innovation happen in practice:

Ability: the skills required to use innovation skills and methods

Motivation: the intrinsic motives or extrinsic incentives to put these skills into action

Opportunity: the mandate and conditions to put innovation into practice and make change happen, for example having the space, time, resources and support from colleagues and management

The final element is often overlooked, but if any of them are missing it is very difficult for people to effectively innovate.

Why or how would you use it?

The diagram is useful for thinking beyond just teaching skills and looking to see if the other elements required for innovation to happen are in place. There are two ways to use this diagram. One is to focus on 'doing' innovation, the other is to focus on 'learning' to innovate.

Particularly with the latter, we often assume that everyone has the ability to learn how to innovate. However, innovation skills are complex skills[13] and they also require learning agility[14] in order to develop and continuously renew and improve them.

We can also assume that the motivation is already there, but that's not always the case – people can be 'volun-told' (being told by your superior to volunteer). This means it's important to verify the learners' motivations before tapping into them.

We also need to allow learners to use their ability and motivation by creating the opportunity and space to actually put their learning into practice. It is easy to enroll people on a course, but as a lot of learning happens in practice.[15] How can they use and advance their skills when they are back in the office?

Typical questions that prompt using this diagram

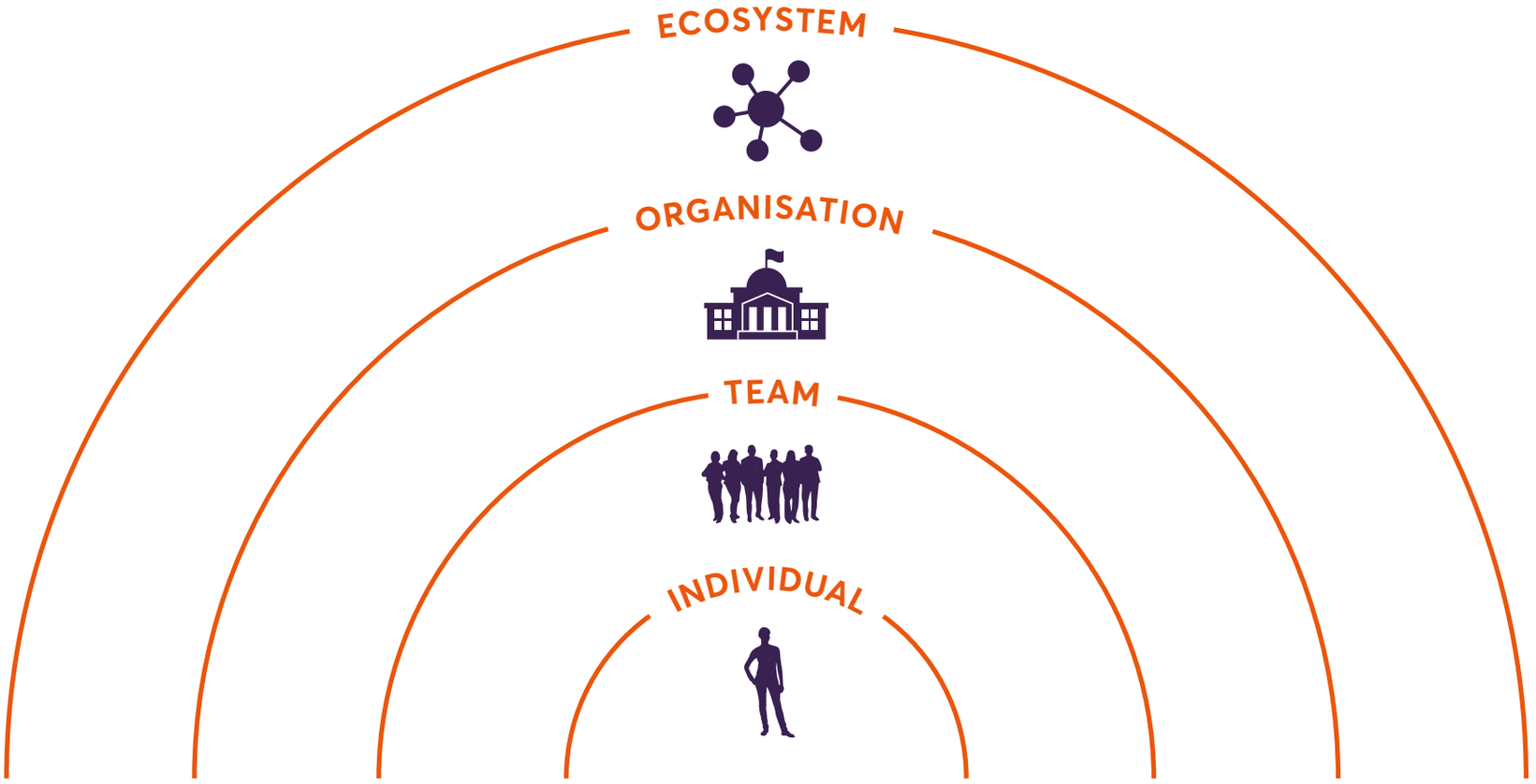
What skills are needed to enable a certain behaviour? What motivates learners? Can learners put their new skills, methods or tools into practice? Is their organisation ready to make use of them? What are the elements that influence behaviour change?

Background

The 'AMO Theory' is a popular model in performance management.[16] It describes performance as a function of ability, motivation and opportunity. A similar model has also been used as a framework for behaviour change.[17] We tend to use both aspects of this model, considering the behaviour change perspective as a means (e.g. test ideas at an early stage of the process) and performance management perspective as an end (e.g. creating better public outcomes).

Four levels of capacity building

A framework for considering different levels of intervention to enhance capacity building



What is it?

Developing innovation capacity involves multiple levels, ranging from individual learning all the way up to the wider ecosystem. Particularly when developing a curriculum or designing a learning programme, we zoom in and out between the following four levels. Each level comes with a specific focus area:

Individual: at this level we try to develop a profile of the individual learner. What learning needs, motivations, aspirations, preferences and prior experience does the learner have? What is their attitude towards innovation? How does learning fit into the everyday life of the learner, and what is relevant to them? Where does a learning programme sit in the wider career path of the learner?

Team: at this level we look at what the entire team should be able to achieve, and what they actually are currently able to achieve. What are the strengths and weaknesses of the team, in terms of innovation competencies? Does the team culture enable and encourage social or peer learning?

Organisation: at this level the most important aspect is culture and organisational readiness. Is an organisation ready to utilise new skills? Does the organisation provide an enabling and permissive environment for learning?

Ecosystem: at this level we look at the wider external environment of an organisation and also consider the community of practice. What external actors play a role in capacity building for an organisation? How are learners or teams connected to the community of practice? How do they become a member of this community?

Why or how would you use it?

Traditionally learning programmes focus on the individual learner, but in practice we see that individuals are part of a team and wider organisation, and that innovation processes are often embedded in complex networks of stakeholders. We also recognise that the myth of an individual 'super innovator' doesn't hold true.[18] So we need to shift our focus from the individual learner to the team, organisation[19] and ecosystems, and include these levels in our decisions when developing curricula and learning programmes.

Typical questions that prompt using this diagram

What different levels should you consider for developing capacity building programmes? What does the wider context of the individual learner look like?

Background

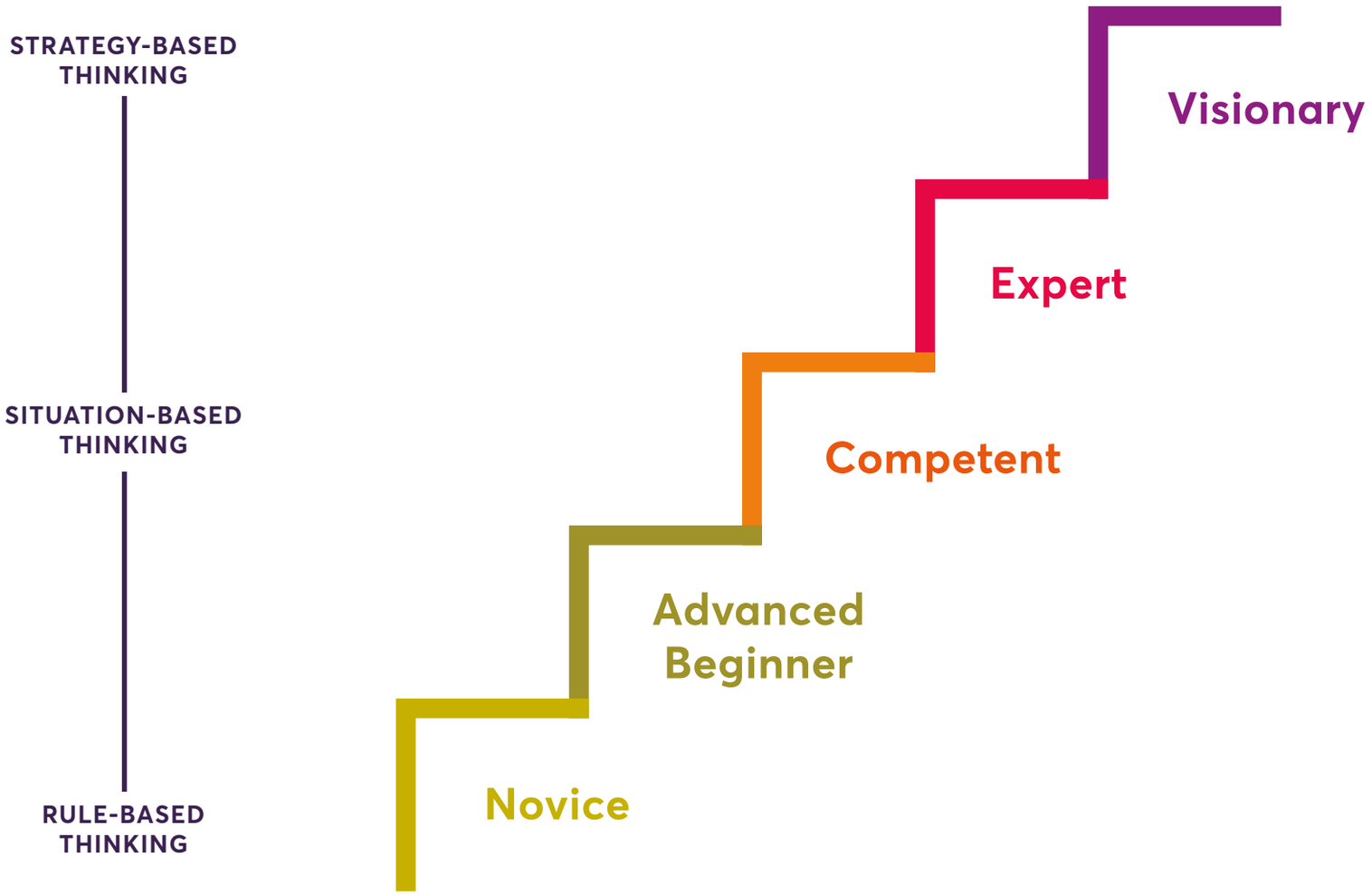
We developed this diagram to help us explain the scope of one of our programmes[20] and to manage its complexity. It helped us define outcomes for each level and further develop our strategy.

Competencies & expertise levels

Defining learning outcomes and pitching your learning offers at the right level

Levels of expertise

A classification of expertise levels for pitching a learning offer at the right level



Inspired by Lawson & Dorst (2009)

What is it?

This diagram demonstrates different levels of expertise, and how you move from one level to the next. The words on the right describe different classifications of expertise levels that are commonly used. On the left are three broader categories explaining the level of expertise by the guidance that you give – i.e. how you instruct people.

Why or how would you use it?

This diagram is helpful for understanding what level your learners are at, and so at what level to pitch your learning offer:

Rule-based thinking: At the novice level, learners often need clear guidance on how to use something and how not to use it, such as a tool or a method. Here, the learning approach provides learners with a prescriptive process and clear instructions on how to execute them in the right order. For teaching at this level, it is essential to break the process down into distinct steps.

Situation-based thinking: As you move up the steps, you encounter a higher level of complexity. This involves looking beyond just the rules or following a strict step-by-step approach. A descriptive process may still provide guidance to plan a course of action, but it requires situational awareness and the ability to respond accordingly. Learners at this level often demonstrate the ability to improvise and find workarounds for limiting requirements and other barriers, and come up with solutions that are appropriate for the unique circumstances of the problem. At this level learners learn best with the help of a mentor, who prompts critical questions and offers new ways of looking and thinking. With innovation skills, it may take up to three to five years to attain this level of expertise.

Strategy-based thinking: This is the highest level, and focuses on setting direction. At this level, experts are able to look beyond the given problem space to come up with unexpected perspectives. They are able to identify a core problem by reframing it. They bring in their personality and personal commitment to the process. As a result of that, they are able to formulate original strategies and consciously design the process to solve a problem. Shaping a learning offer for this advanced level can be hard as experts will often provide their own learning. However, good coaching might be helpful to help them reflect on their strategies and their effectiveness. Alternatively, letting experts mentor others also allows them to become aware of how they work by making the tacit explicit.

There is sometimes a misconception that the end goal should always be to become a visionary. This is highly unlikely, as moving just from novice to advanced might take months or years. Becoming an expert might even take a decade or more. Often people don't ever reach the expert or visionary levels, so be realistic in what you're aiming for.

Although the steps suggest progressing from one level to the next, learning is a dynamic process so a learner might jump back and forth between levels depending on their practice of the skill.[21]

Typical questions that prompt using this diagram

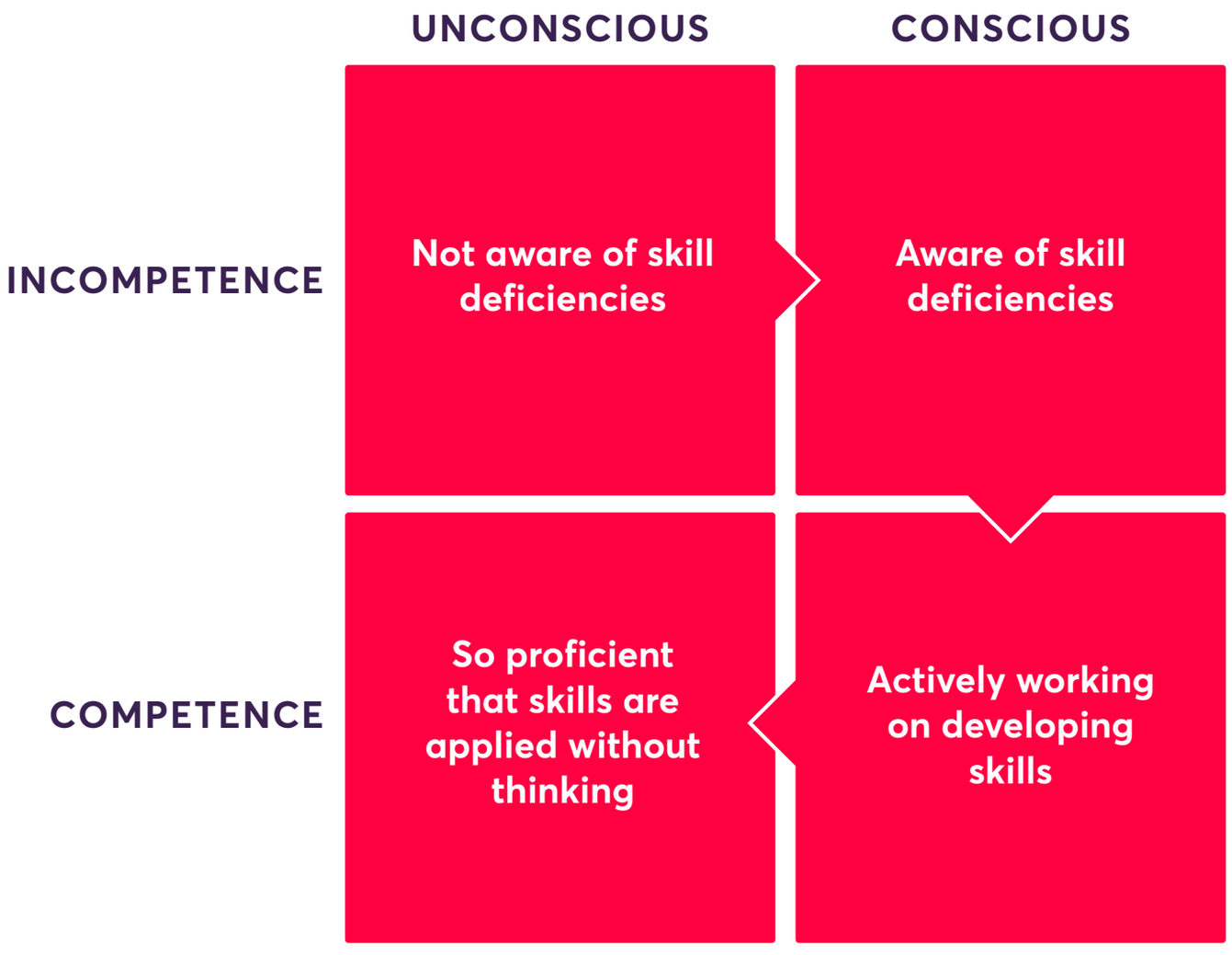
Where should you pitch the learning offer? What type of approach works best for the level of learner expertise?

Background

The five levels of expertise were defined by Dreyfus.[22] Based on that, Bryan Lawson and Kees Dorst defined their wider categories of expertise[23] to provide a framework for assessing design competency.

(Un)concious - (in)competence

Four awareness and competency levels for developing learner profiles



Inspired by Adams (2016) and Mullen (2016)

What is this?

This diagram shows another way of looking at expertise levels, and contains four different levels that learners can pass through. These levels can be applied to specific innovation skills (e.g. storytelling) or methods (e.g. prototyping):

Unconscious - Incompetence: at this level, learners lack the skills and are not aware that they don't have them: *"I don't know that I don't know how to do this."*

Conscious - Incompetence: at this level, learners still lack the skills but are aware that they do not have them. They sense an urgency to develop them: *"I know that I don't know how to do this, but I need to learn this."*

Conscious - Competence: at this level, learners are actively working to acquire the skills that they have identified they are missing: *"I know that I'm learning how to do this the right way."*

Unconscious - Competence: at this level, the skills have become like second nature and the learner is able to apply them without thinking: *"I did something well? I actually didn't think too much about what I was doing."*

Why or how would you use it?

This diagram is useful for helping you develop a profile of the learners, in order to consider what your learning offer looks like and how you should pitch it. For example, when developing a learning journey, think about what level your learners are at and what activities might support them to move on to the next level.

Typical questions that prompt using this diagram

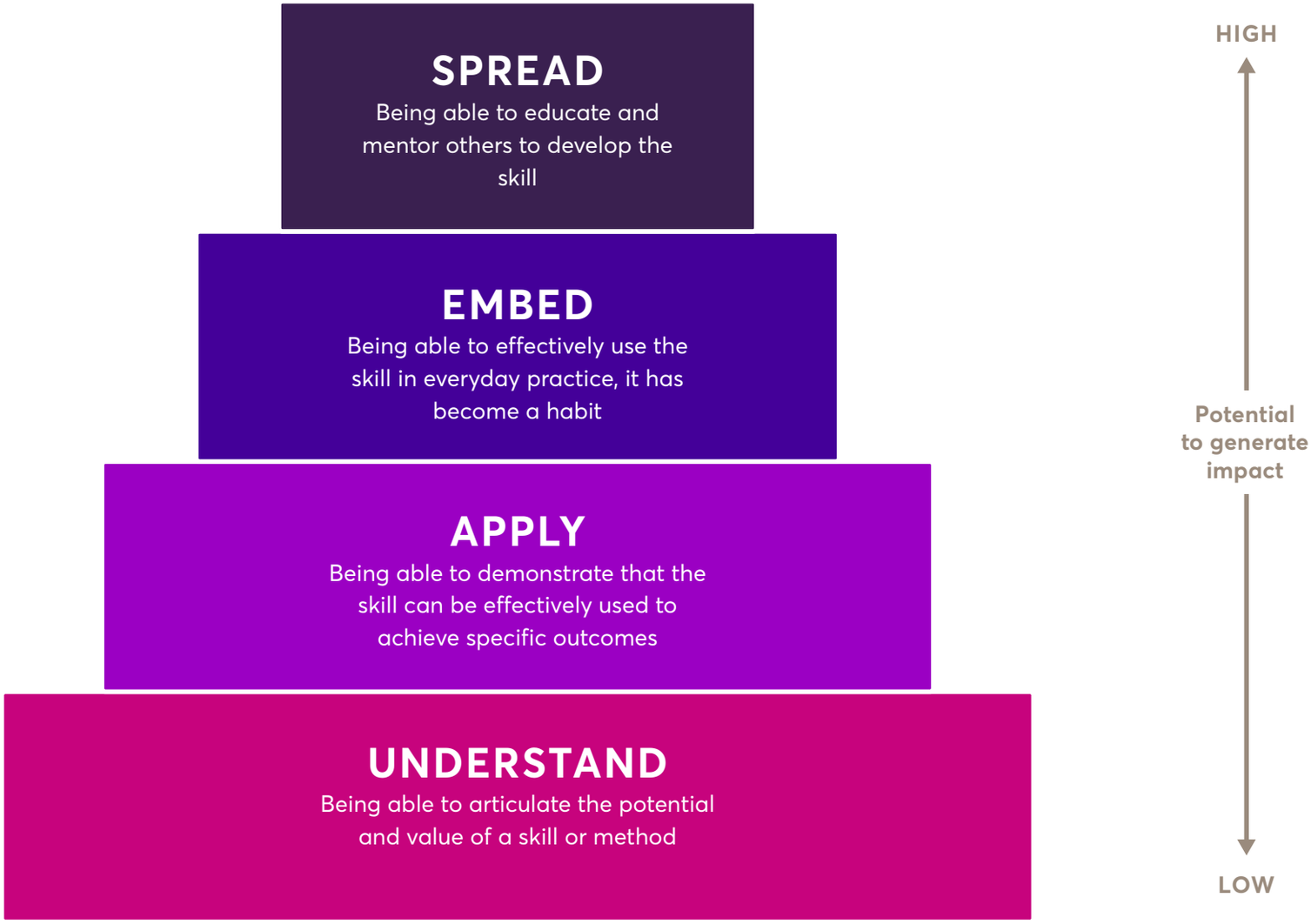
What level of expertise are your learners at? How can you make learners aware of what expertise they already have, and how to advance to the next level?

Background

This model was initially developed by Noel Burch in the early 1970s when he was working at Gordon Training International.[24]

Innovation skills hierarchy

A classification of skills levels to help define learning objectives



What is it?

This diagram features four skill levels that can be used to structure your learning objectives and pitch your learning offer correctly. There are four levels of attainment that learners should be able to demonstrate. These levels are:

Understand: learners are able to articulate (e.g. by explaining to others) the main concepts of a method or skill and are able to point out its potential and value for a team or organisation.

Apply: learners are able to demonstrate the ability to effectively use the skills or methods in order to achieve a certain output or outcome (e.g. learners are able to create a persona based on ethnographic research). At this level learners might still need some support and guidance from a 'more knowledgeable other', or the skill might be demonstrated in a controlled environment (e.g. through a simulation).

Embed: learners are able to demonstrate the effective use of the skill in everyday practice. They have successfully embodied the skill and it has become a habit or part of key procedures (e.g. as part of the policy cycle, actively engaging with citizens for consultation or using co-creation to inform/drive decision making).

Spread: learners are able to spread a skill across a team, organisation or network. They may use formal training methods as well as mentoring to help others develop the skill.

Each level has a different purpose and potential to generate impact. Learners will be less likely to create impact when they only understand how a skill or method works, and therefore aiming for higher levels increases the potential to generate impact.

Why or how would you use it?

When planning your learning outcomes, it's helpful to think about where you should pitch your learning offer. For example, a taster session for a group of decision makers might concentrate on 'understanding' the principles and value of a method. Success would be demonstrated by learners being able to articulate those principles by explaining them to others. On the other hand, for a training session with an innovation team aimed at building skills they can 'apply', you need to move learners to the next level and focus on doing. This may involve hands-on exercises that allow learners to experience how skills work in practice.

We often see that people stick to a default learning activity (e.g. a discussion panel) that is useful for developing conceptual understanding, but is unlikely to equip the learner with the actual ability to do innovation. This diagram helps to define the level of ambition (i.e. what a learner should be able to do or demonstrate after a session) and align that with the learning activities. It is useful for emphasising that 'understanding' and 'doing' are different things, and that learning activities need to be developed differently for each. Rather than use it as a set of distinctive steps, here in the Innovation Skills team we look at it as a spectrum that helps us position what our learning offers should be aiming for.

Typical questions that prompt using this diagram

How should you define the learning objectives for your session? At what level should you pitch your learning offer?

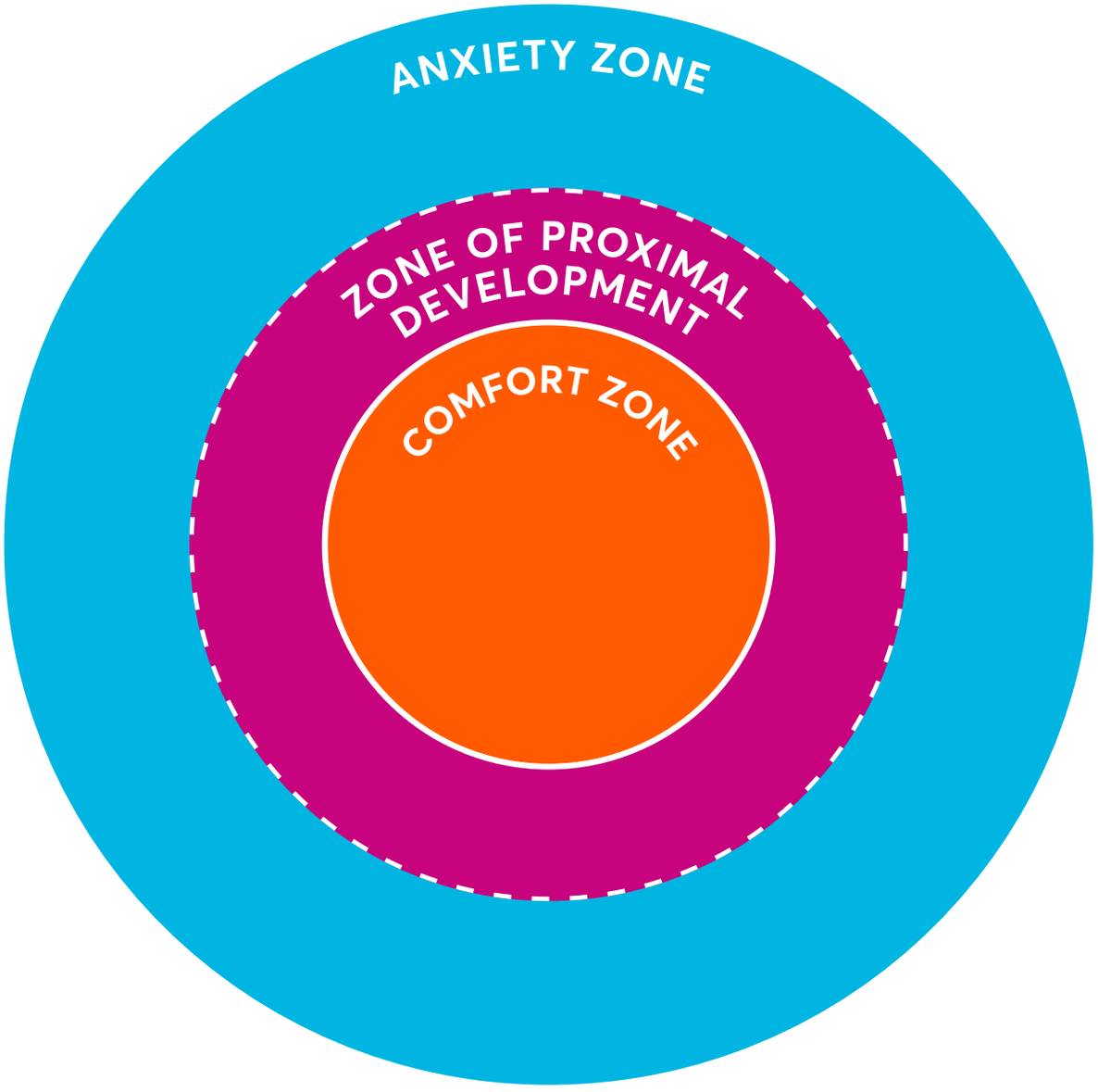
Background

This diagram is inspired by Bloom's taxonomy,[25] which was developed in 1956 to promote more advanced forms of thinking in education. It focused on moving beyond getting students to just remember facts, and prioritised more complex skills like applying, analysing, evaluating and creating. It was designed to support educators and curriculum developers to develop a common ground and help them structure their learning objectives, assessment methods and learning activities. In 2001 a revised version was presented by some of Bloom's former students.[26] This version uses verbs for each level instead of nouns and swaps the two top levels.

In practice we have found Bloom's taxonomy doesn't always translate well to our domain of developing innovation skills. It can be too granular and focuses too strongly on thinking skills, whereas we have a bias towards action.[27] We have therefore categorised our skill levels into four broad categories and emphasised practical application as the overall premise.

Zone of proximal development (Vygotsky)

Pitching a learning offer at the right level; not too easy and not too hard



Inspired by Vygotsky (1980)

What is it?

This diagram looks at how to pitch and deliver a learning experience at the right level to help your learners get the most out of it. We describe this using three different zones:

Comfort zone: what a learner can do without help

Proximal development zone: what a learner can do with help and guidance, through the support of a 'more knowledgeable other'[28]

Anxiety zone: where a learner is too far from their comfort zone and therefore cannot learn or do

Why or how would you use it?

Learning happens when learners are outside their comfort zone and they experience a certain level of friction. But you don't want to push your learners too far. Learning won't happen if learners are inside their comfort zone, but nor does it happen when they are confronted with a daunting task and experience anxiety.

We often talk about innovation practice as a muscle, and that you need frequent exercise to build it, similar to lifting weights in a gym. If you stay in your comfort zone and don't exercise it all, you won't strengthen it – but at the same time, overworking or stretching it too far isn't helpful either. Instead, learning happens when it is pitched right in middle; getting learners out of their comfort zone but not pushing them into their anxious zone. This is the zone of proximal development.

This zone is dynamic; once learners have practiced and developed a new skill, it will eventually become part of their comfort zone. When that happens they are then ready to progress to the next stage and advance their skills by tackling a slightly more complex challenge or receiving less support.

Typical questions that prompt using this diagram

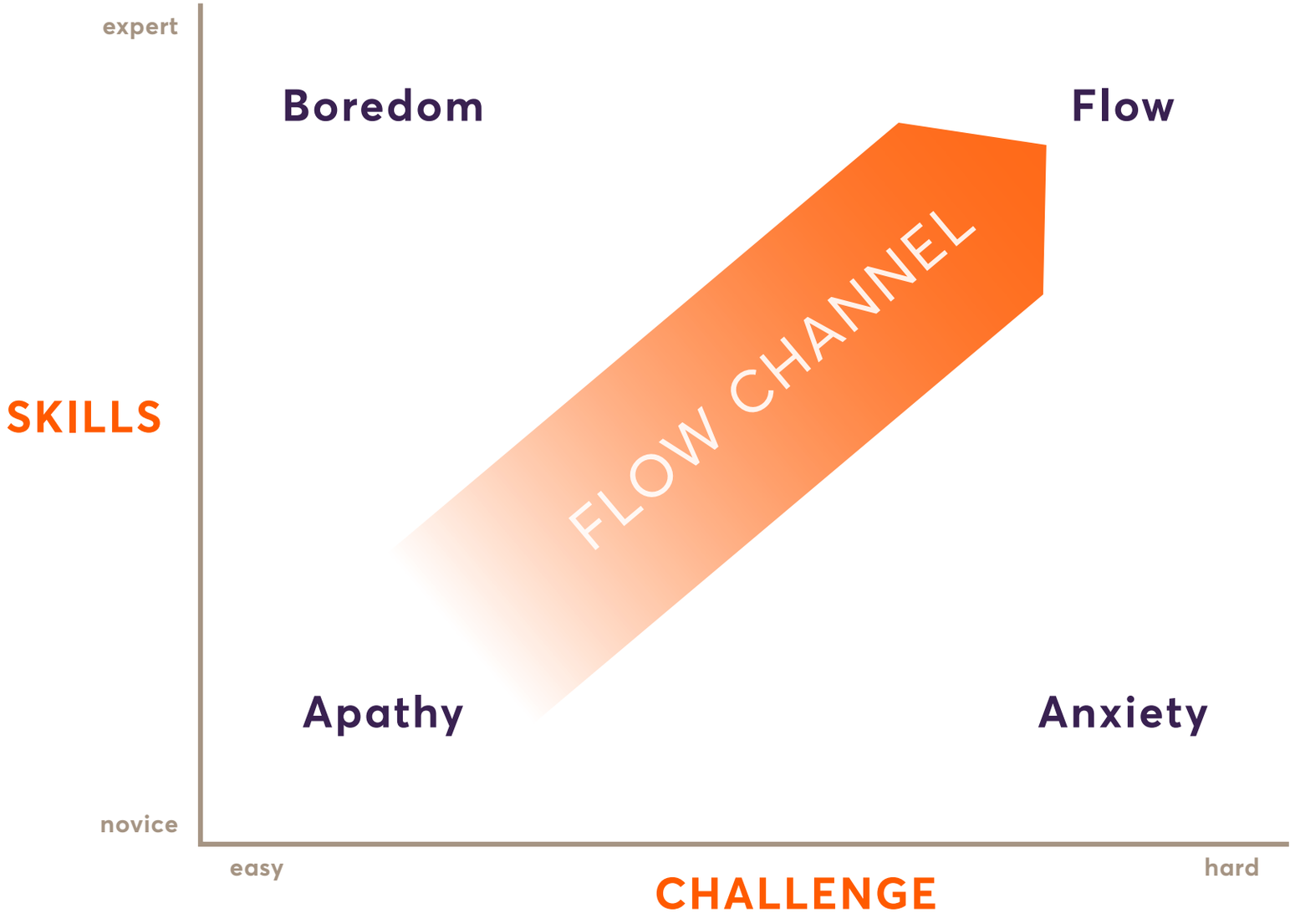
Where should you set the bar? How far should you push your learners? What is the sweet spot between making an exercise too easy or too hard?

Background

The concept of the zone of proximal development was first introduced by Lev Vygotsky around 1920.[29] Although its origin is based in developmental psychology and focused on how children learn, it is also helpful in adult learning to set out learning strategies and journeys.

Flow: balancing challenges & skills (Csíkszentmihályi)

Striking a balance between challenges and skills to create an immersive learning experience



Based on Csikszentmihalyi (1990)

What is it?

This diagram illustrates how to achieve the right 'flow' when designing a learning experience. Flow is the mental state in which learners are fully immersed in the process of learning – also referred to as 'being in the zone'. This flow is created in learning experiences by striking a balance between the skills a person has and the challenges they are given.

Why or how would you use it?

To create an effective learning experience – an experience that is neither too hard nor too easy – you have to consider current skill levels and align them with the challenge that the learners need to tackle.

If you give a learner with low skill levels a complex task, it is likely to result in anxiety. On the other hand, simple challenges for more skilled learners will likely create boredom. We often use this diagram in conjunction with the concept of the 'zone of proximal development' (see page 40) in order to develop the right flow so that people can progress – moving from their proximal development zone to their comfort zone as they become practised at using a new skill. Within a curriculum, this becomes a dynamic process where learners move through an ongoing cycle of skills development.

Typical questions that prompt using this diagram

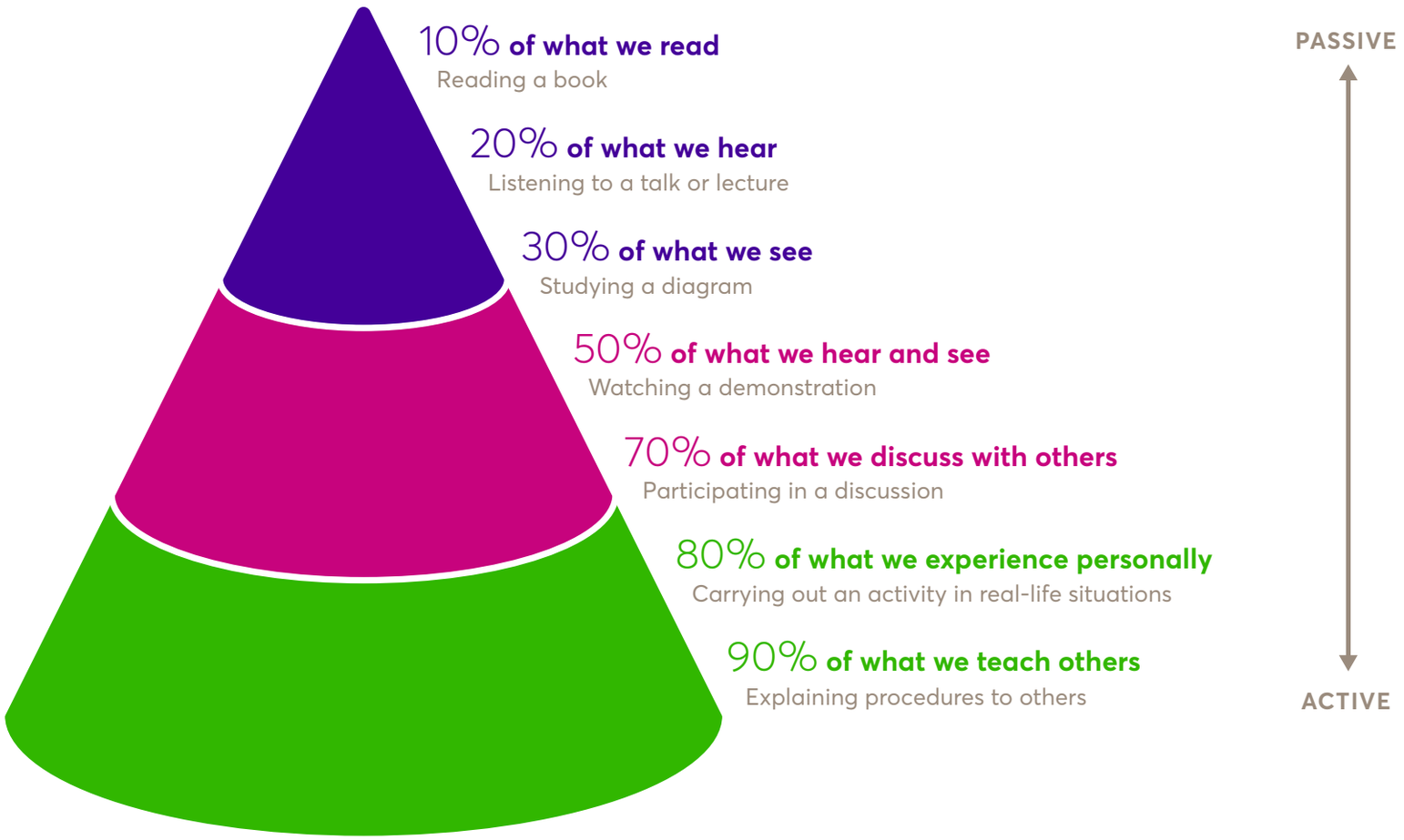
How do you make sure learners are energised and not bored or distressed? How do you align learning activities with the skills that learners already have?

Background

The concept of 'flow' was developed by Mihály Csíkszentmihályi.[30] It can be observed in many activities, e.g. playing a music instrument, doing sports, or playing a computer game.

Cone of learning (Dale)

A hierarchy of learning activities for considering their effectiveness



Inspired by Dale (1946)

What is it?

The cone of learning represents an order of learning activities and indicates their effectiveness, ranging from conceptualisation (through reading and listening) to concrete experience (through doing). The model suggests that learning activities that build upon real-life experiences are more effective, as opposed to using text and (visual/verbal) symbols as the source of learning. It is essentially a depiction of the old Confucian proverb: 'I see and I forget, I hear and I remember, I do and I understand'.

Why or how would you use it?

The diagram helps to explore different learning modes and shift the focus to more action oriented learning methods. We believe that active engagement with a subject is most effective to develop innovation skills. Retention of learning is best when people are actively engaged in a real situation. However, in our conversations with clients and colleagues, we often notice a tendency towards more conceptual learning; methods such as discussion panels or talks are often mentioned first. We use this model to help them consider a wider range of learning activities that are more fit to purpose.

Typical questions that prompt using this diagram

What kind of learning experience do you want to provide? Are you using the right learning method?

Background

The cone of learning[31] was created by American educator Edgar Dale[32] in 1946 and first appeared in a textbook on audiovisual methods in teaching. One of its main critiques is that it isn't grounded in robust evidence and it is often misinterpreted (e.g. Dale's original cone did not feature percentages). Despite this, we still consider it a helpful tool to prompt discussions about learning activities.

Competency framework for public problem solving[33]

Key skills and attitudes required for experimentation and public problem solving

Christiansen, Leurs & Duggan (2017)

What is it?

This framework identifies the core skills and attitudes needed by public servants in order to experiment and adopt a greater range of innovative practices for public problem solving. We have attempted to provide a combined view on what it takes to set up and run explorative innovation processes, while also creating an enabling environment for innovation within an administrative and political context. The framework describes three core categories that – from our experience and research – are crucial to form the basis of successful experimental problem solving:

Accelerating learning: Exploring and experimenting to identify knowledge gaps, create new understanding and inform decision-making in new ways.

Working together: Engaging with citizens and multiple stakeholders to ensure co-creation and collaborative ownership of new solutions.

Leading change: Creating space for innovation and driving change processes to mobilise people, inspire action and ensure strategic outcomes.

Why or how would you use it?

We believe that problem solving is at the heart of how governments operate, and so we need to demystify how innovation approaches can be useful and what the relevant skills and competencies are in relation to problem solving activities. By framing our competencies around experimental problem solving, we try to emphasise how core attitudes and characteristics, in combination with key skills and competencies, enable behaviours that increase the likelihood of successful problem solving activities and better improve capacity.

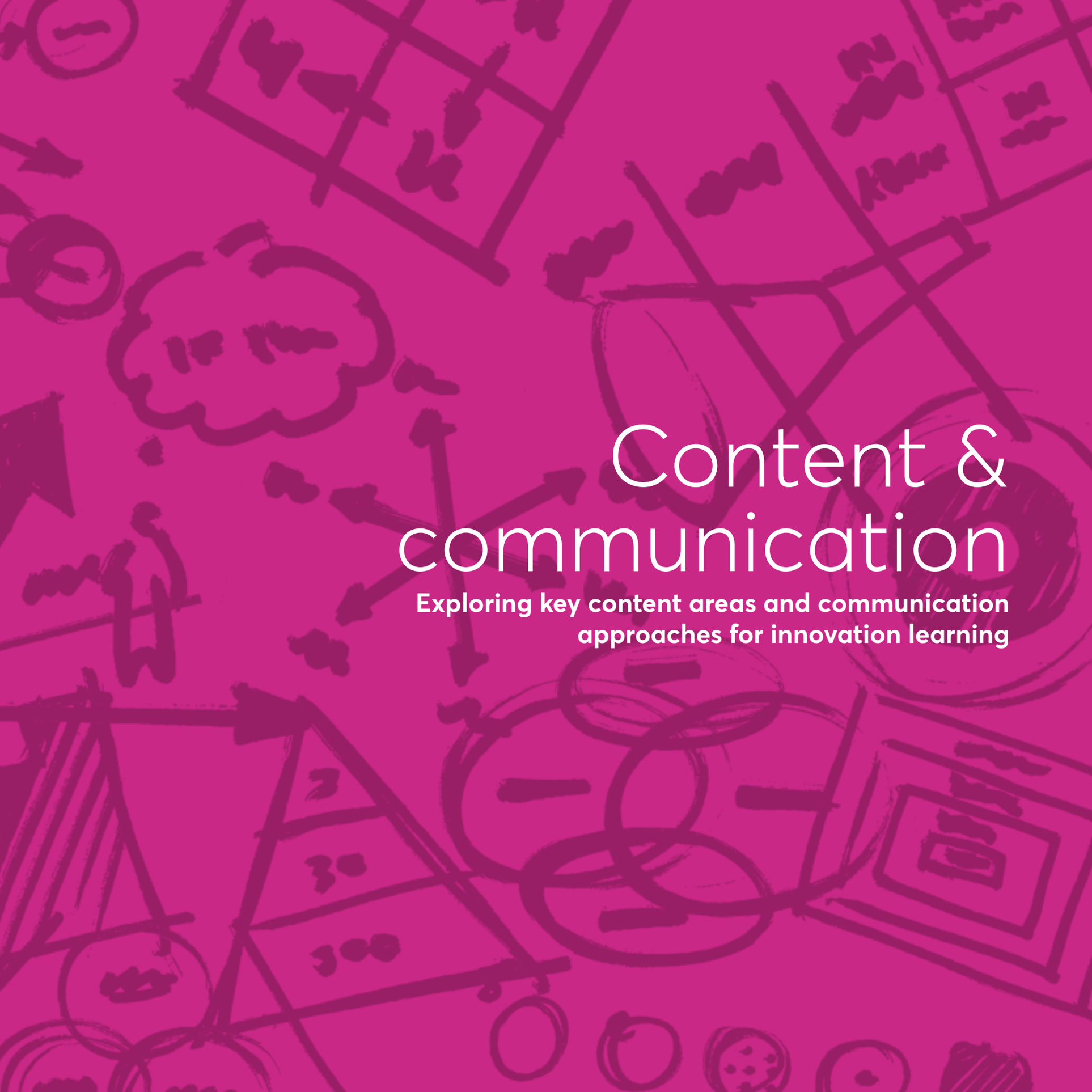
We use this framework to explain what we mean by 'innovation skills' and to highlight the attitudes and mindsets that are needed for public innovation. We also use it to shift the focus from an individual using or learning one innovation method (e.g. human centred design) to a team using a wider spectrum of skills to effectively tackle complex issues. Future iterations of this framework should help to design innovation teams, shape HR strategies and recruitment, define outcomes for immersive learning programmes and develop tools for impact assessment.

Typical questions that prompt using this diagram

What skills and attitudes are essential for government innovation? What attitudes should you look for when recruiting a team? What skills should you develop?

Background

This framework is an initial overview and the first step in our process of understanding, reflecting on and assessing the key attitudes and skills that we consider crucial for public sector innovation.[34] In order to develop this framework, we have used the experience of the Nesta Innovation Skills team, complemented with our insights from a study on the experiences of 30+ leading public sector innovation practitioners from around the world. These insights were subsequently tested with selected governments and innovation experts to ensure accurate representation, relevance and usefulness. The framework is a work in progress and part of our public innovation learning programme.

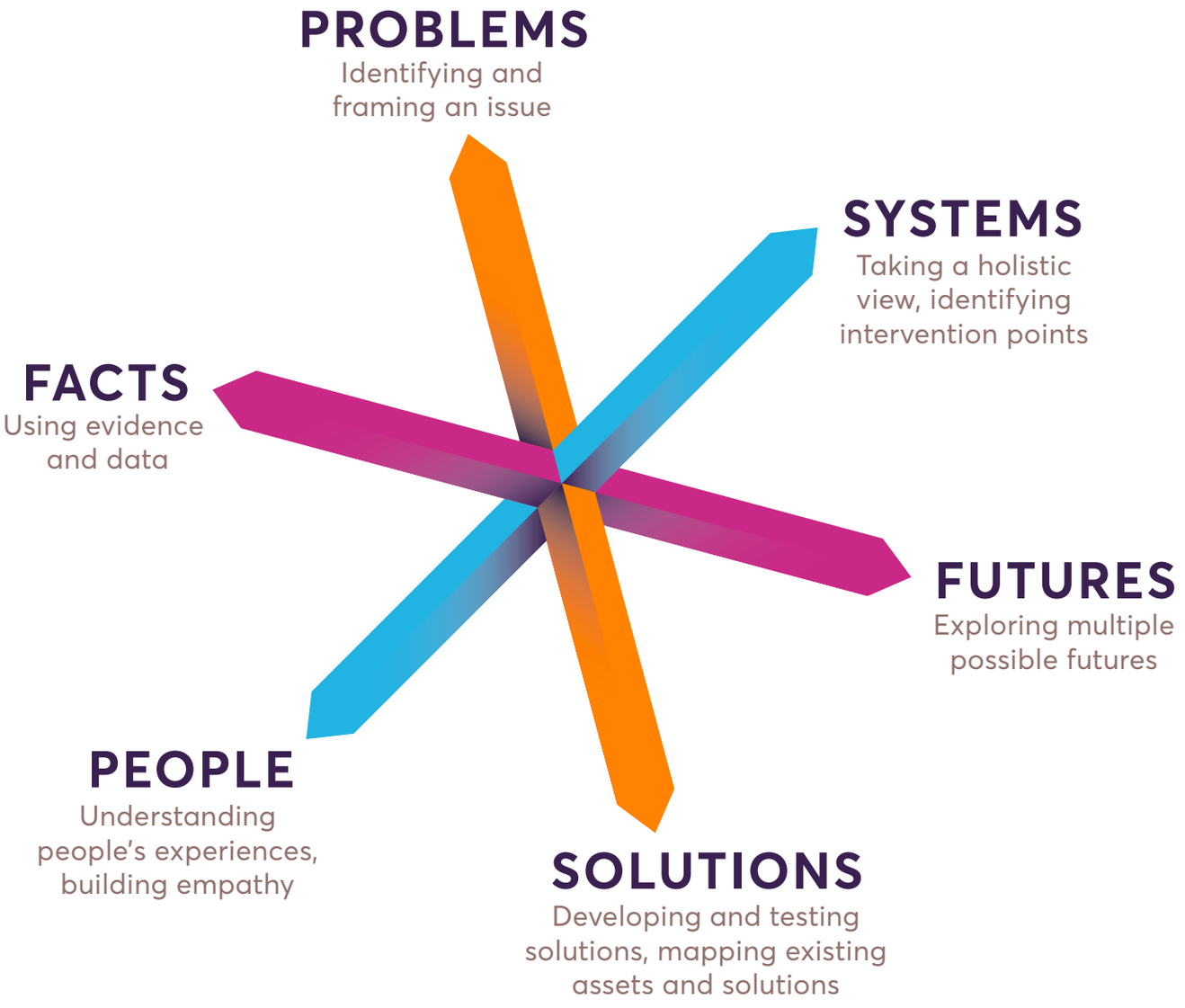


Content & communication

Exploring key content areas and communication approaches for innovation learning

Principles of innovation

Shifting the focus from only methods to habits and mindsets



Leurs, Quaggiotto & Christiansen (2018)

What is it?

This diagram lays out our six principles of innovation. We see these principles as habits and mindsets that are essential to policy or programme design activities. They help change how we perceive and frame reality, and prompt us to explore different solution spaces and prepare for multiple futures. They offer various perspectives on an issue, and help to identify knowledge gaps, challenge assumptions and generate richer understanding[35] in order to make better informed decisions.

The principles cut across various innovation methods (e.g. design thinking, systems thinking, futures and foresight, evidence based policy making) and are used throughout the innovation process. The challenge is to effectively manage the dynamics between opposing mindsets,[36] skillsets and ways of acting.[37] This diagram represents that dynamic, and illustrates the tensions between three pairs of principles.[38] These pairs are:

People and systems: these involve the dynamic of zooming in and out between people's needs, and the wider system to understand problems and solutions from different perspectives and levels. This dynamic builds on a range of activities, varying from ethnographic techniques (e.g. interviewing, observations), to stakeholder analysis and network mapping, to modeling and mapping systems.

Facts and futures: these draw on the tension between past, present and future. Decision making is informed by toggling between using evidence and data, and being imaginative and exploring multiple possible futures. Activities vary from using data analytics to identify trends, to using storytelling techniques in order to generate new understanding. On one hand, rigorous experimental methods such as RCTs are used to validate solutions and to build a solid evidence base. On the other hand, foresight, horizon scanning and speculative design are used to explore and create visions of multiple possible futures.

Problems and solutions: these involve the interaction between problems and solutions, and how switching between the two helps to better understand the nature of a challenge, as well as identifying opportunities for change. They build on a range of activities, including: root cause analysis, problem framing and reframing, prototyping, co-creation, and user or community led approaches (e.g. solution/need pairing, positive deviance).

Why or how would you use it?

Every innovation method has both strengths and weaknesses. Design thinking, for example, focuses largely on understanding people, systems, and identifying problems and solutions. But it is less strong on using data analytics to explore trends,[39] setting up trials to validate solutions,[40] or exploring multiple possible future scenarios.[41] To compensate for such deficiencies, we often see that innovation practitioners use a mix[42] or hybrids[43] of innovation methods. The breadth and variety of these methods are brought back to their bare essentials and captured in this diagram.

This diagram aims to challenge the natural inclination of innovation practitioners towards a specific method, and to stimulate discussion and reflection to look beyond mere methods, shifting the focus to principles.[44] We also use these principles as the basis for our learning programmes (see page 56 - taxonomy of innovation methods). They help us structure our learning activities and make sure that learners are equipped with a well-rounded set of competencies.

Typical questions that prompt using this diagram

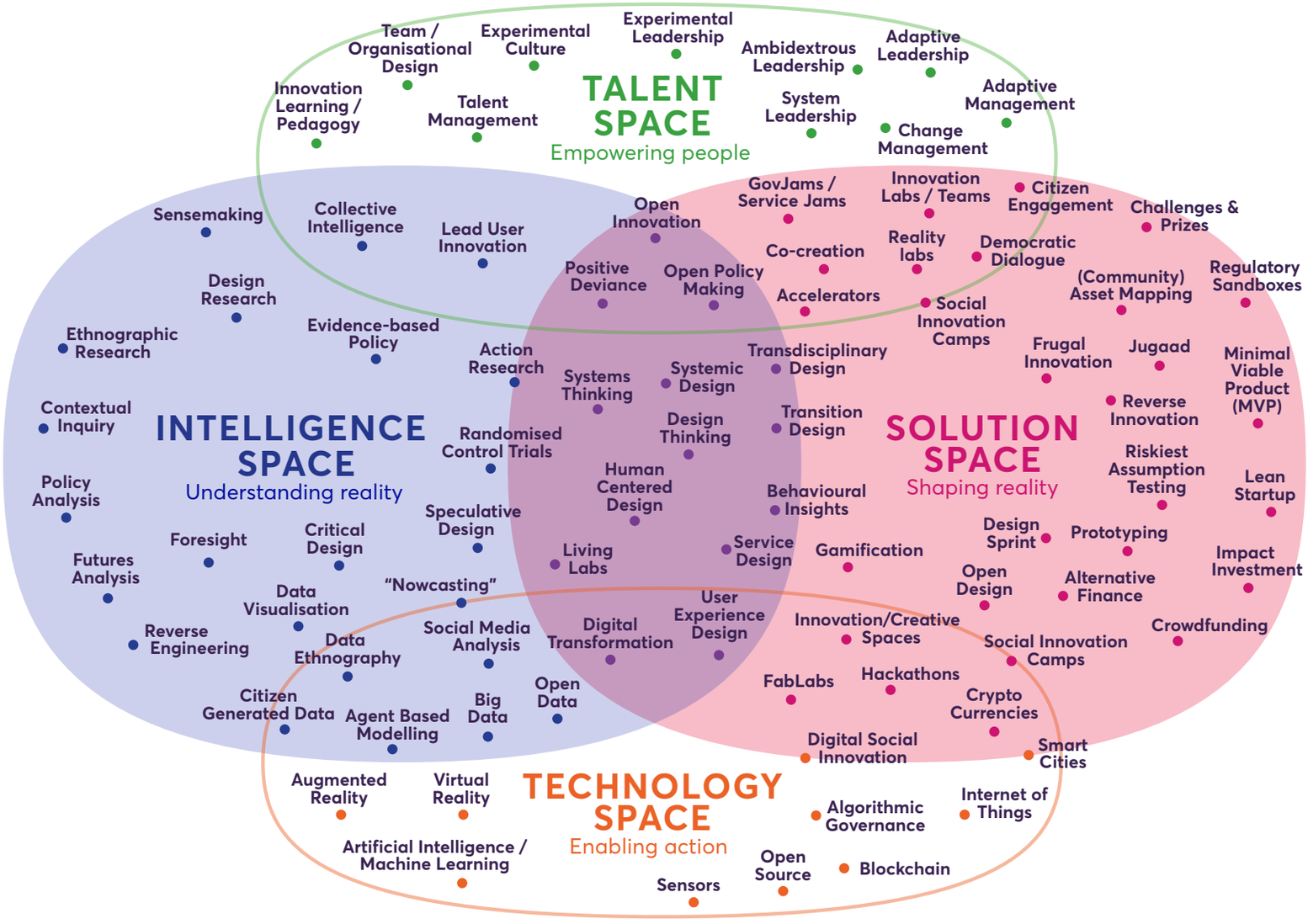
How might you challenge personal biases or preferences towards a specific innovation method? How might you point out the strengths or weaknesses of a method? How might you shift the focus from methods to principles?

Background

We have extracted these key principles from a range of methods (see page 52 - landscape of innovation approaches) that we consider essential for teams to do innovation projects in an experimental way. An early version was developed for the work we did with UNDP for the 'Project Cycle Hackers Kit'[45] and our thinking around these principles was further shaped as we developed our competency framework for experimenting and public problem solving.[46]

Landscape of innovation approaches

An overview for exploring different innovation methods when developing an innovation strategy



Leurs (2018)

What is it?

This diagram provides an overview of innovation methods and approaches that help people make sense of reality, and approaches that help develop solutions and interventions to create change. These approaches are categorised into four spaces: intelligence, solution, technology and talent.

The two most important of these spaces are the intelligence space – which involves understanding context and reality – and the solution space – which involves shaping that context and reality. In terms of mindset, the intelligence space is more academic whereas the solution space involves more of an entrepreneurial approach.

The activities in these spaces are supported by the technology space, which includes approaches and technology that enable action and change such as digital tools and data-related methods. On the opposite side of the diagram, the talent space focuses on how to mobilise talent and develop skills that will ultimately make change happen.

Why or how would you use it?

We have found this overview helpful to support conversations around setting up a lab, or when considering the content of a learning programme. We have noticed that when a client or innovation expert considers a certain innovation method, there is often a personal bias. For example, designers are strong advocates of design related methods like design thinking or human centred design. When academics are involved in an innovation process, they show a preference for more analytical methods. But it's important to challenge that bias and look beyond our own disciplines at other methods. This helps us to think more strategically.

In innovation labs we also see that practitioners often use more than one tool or method, and that they have a diverse set of skills and various methods to 'get the job done'. For example, Nesta's report on Innovation Teams[47] shows that, in practice, design thinking is often used in conjunction with other methods like open data, ethnographic research, challenge prizes or behavioural insights. This diagram helps explore the different spaces and informs decision making when developing a lab or innovation strategy.

Typical questions that prompt using this diagram

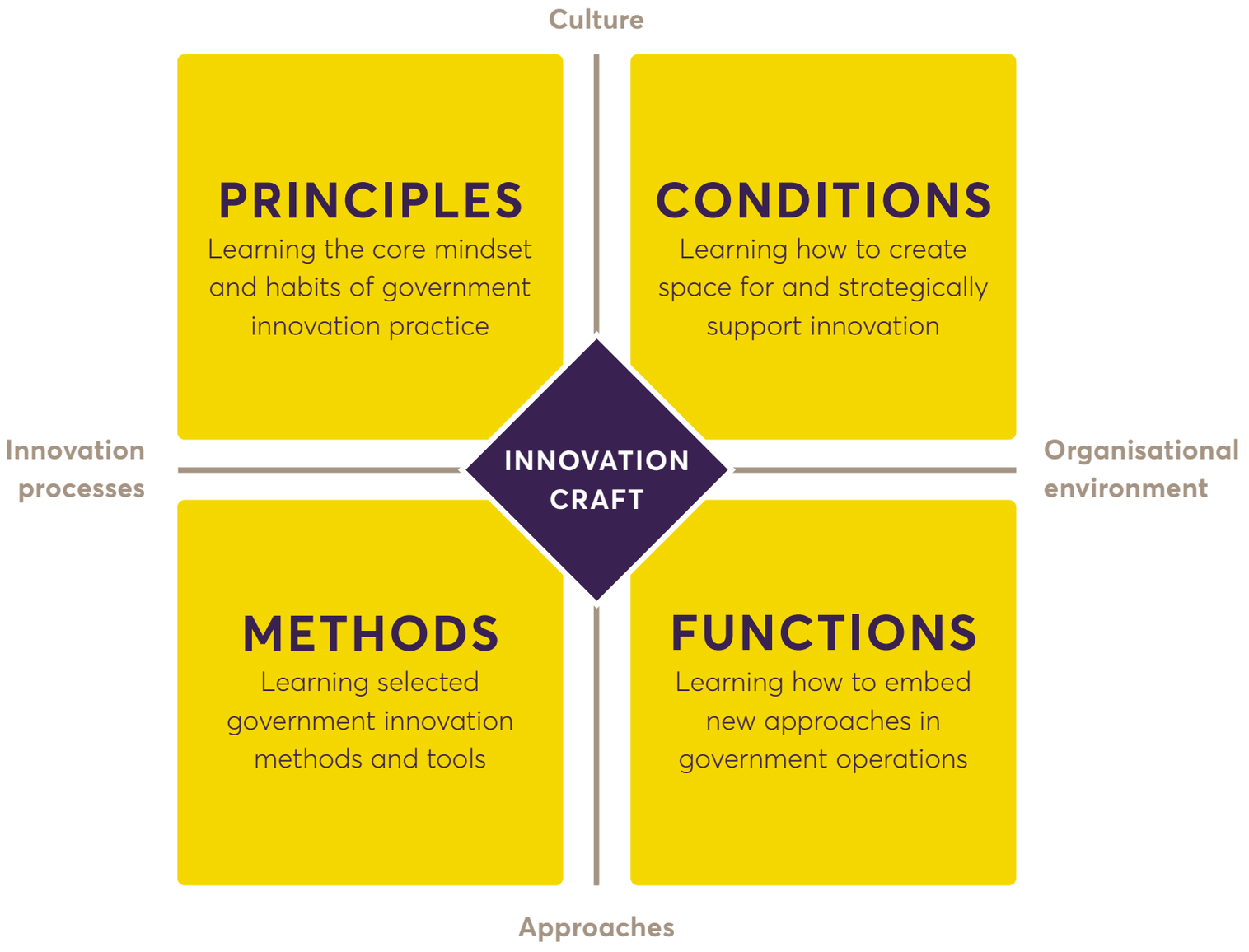
What innovation approaches are out there? What topics and themes should innovation learning cover?

Background

This diagram developed from our thinking around design and how it fits with other innovation methods. We created this list from many conversations with different lab practitioners, colleagues and other innovation experts, and although it is not exhaustive it offers an overview of commonly used and emerging innovation approaches.

States of Change curriculum

The building blocks for a curriculum to develop and embed innovation craft in government



What is it?

The *States of Change* initiative aims to substantially improve governments' capacities to innovate[48] and offers a practice-oriented curriculum for government innovation. The curriculum aims to embed innovation craft and improve problem-solving abilities by focusing not only on innovation methods, but also on the behaviours, mindset and culture that enable innovation in government. In order to develop such a craft, we consider the following four elements as essential building blocks.

Innovation principles: focuses on developing the core mindset and habits of government innovation practice. This involves mindsets and habits that cut across methods, and the ability to effectively manage the dynamics between these opposing mindsets. The principles include: people and systems, problems and solutions, facts and futures (see page 50). These principles form the foundation of innovation craft and enable learning and the effective application of new methods.

Innovation methods: focuses on learning selected government innovation methods and tools. Generally these methods and tools are well codified and established. Examples of such methods include: human centred design, systems thinking, futures and foresight, prototyping, to name a few (see page 52 - landscape of innovation approaches).

Innovation conditions: focuses on learning how to create the appropriate conditions and enabling environment to strategically support innovation. This includes areas such as: organisational readiness, competencies and skills, leadership, ecosystem development and impact assessment.

Innovation functions: focuses on learning how to embed new approaches in core government operations, structures and roles (e.g. policy cycles, procurement or regulation practice) in order to create space for innovation. Learning concentrates on how to manage projects within bureaucratic and political contexts, organise for innovation, run innovation labs/teams, and embed new roles and tasks.

Why or how would you use it?

We often use this diagram to articulate our ambitions, or explain the scope and structure of the *States of Change* curriculum. It demonstrates the content areas that are needed to effectively drive the innovation process, as well as to create the space and mandate to innovate (also see page 28 - AMO framework). It also illustrates the soft (i.e. cultural) and hard (i.e. methods and approaches) aspects that are involved in building innovation capacity.

We use this diagram as a navigational tool for curriculum development. It provides a high level overview of the curriculum, and helps us verify if we have included and considered all salient aspects in our decisions. We also use it to help plan our R&D activities.

Typical questions that prompt using this diagram

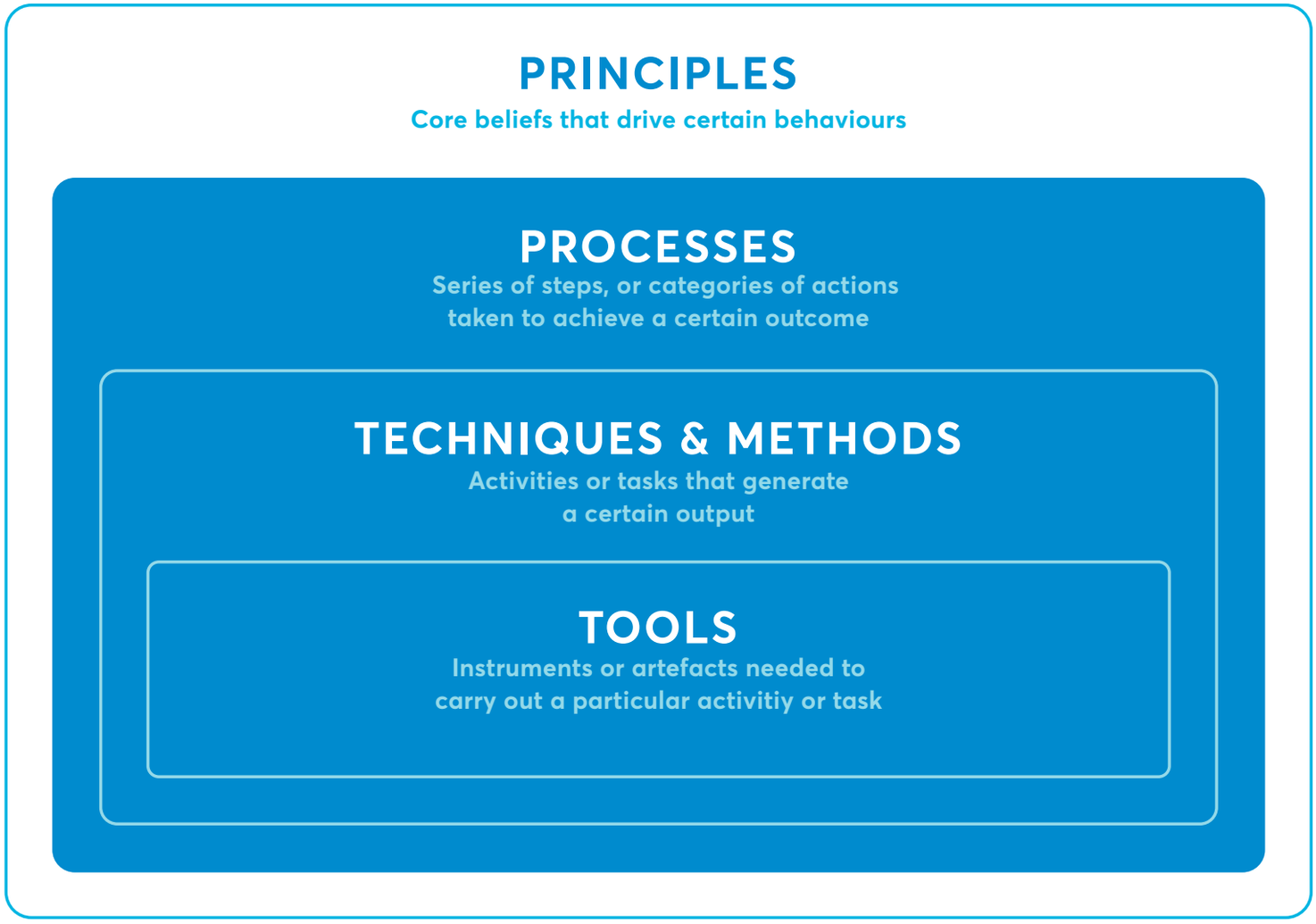
What does the big picture of the *States of Change* curriculum look like? What content areas are needed to enable innovation?

Background

The diagram was developed to structure content areas for the *States of Change* curriculum. It was designed to address the need for skills development that enables civil servants to drive the innovation process, as well as create the space to effectively apply their skills.

Taxonomy of innovation methods

A structure for codifying innovation methods



What is it?

This diagram shows the breakdown of an innovation approach or practice, looking at all the key elements - principles, process, techniques and methods, and tools. Most innovation approaches feature all of these elements, and below we use design as an example:

Principles: these form the fundamentals of a practice. They encompass the core beliefs and drive certain behaviours displayed by effective innovators. For design, 'building empathy', 'iterating' and 'visual thinking' form the key principles of its practice.[49]

Process: this describes the order of activities that are needed to achieve a certain outcome. These activities are organised in process steps or stages. The nature of these processes can be linear, iterative or interactive. The Double Diamond (see page 68) is often used as an archetypal design process and involves four stages: discover, define, develop, deliver. Although it is presented as a linear process, you might go through these stages in an iterative way.

Techniques: these involve an activity that is necessary to achieve a certain output or outcome. Specific techniques are usually linked to a certain stage in the wider process. For example, interviews with end-users are often used as a technique in the discover stage of the design process to explore and understand people's needs, motivations and goals. They help to build empathy and define a problem from a user perspective.

Tools: these are normally used to support a particular technique or method. For example, personas can be used to capture and communicate insights from user interviews and observations. Or customer journey maps can be used to support interviews and explore how people experience a service.

Why or how would you use it?

When teaching a new method, the most obvious approach might seem like training learners to use specific tools, but we often first begin with drilling down into a few key principles. To use the words of architect and educator Frank Lloyd Wright: "Do not try to teach design. Teach principles". This diagram helps to take a bird's eye view of an innovation approach and break it down into its constituent parts.

Exploring the principles of an innovation approach means you go beyond solely the practical level to identify what really makes the method effective and different from other ways of doing things. This helps learners to understand why a method works, rather than just blindly following a process. These principles can then be used as the starting point for structuring your learning experience.

Typical questions that prompt using this diagram

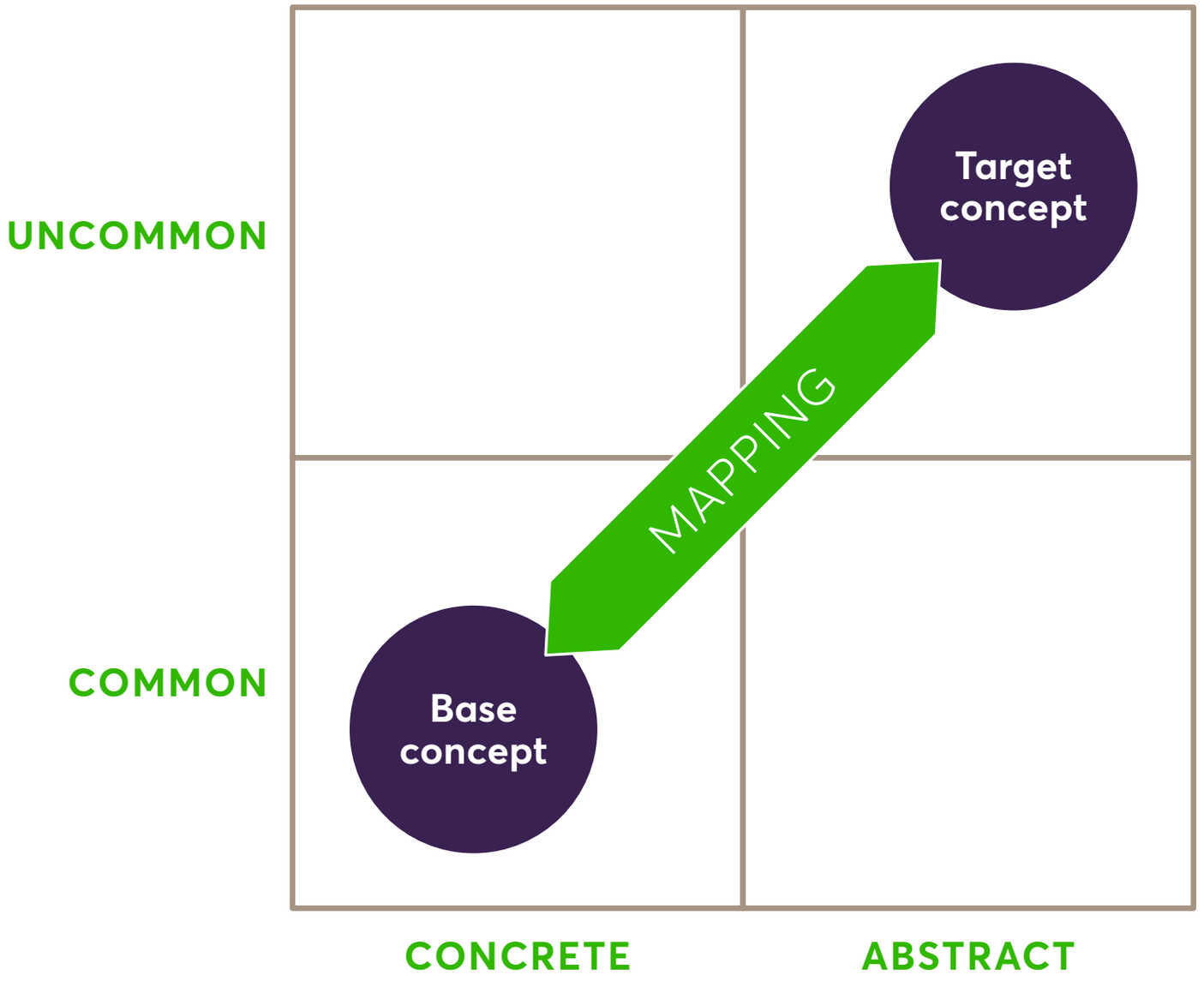
How do you make sure you cover every salient aspect of a practice in your learning offer? How do you make sure learners understand the 'why' behind techniques and tools?

Background

This diagram was initially developed to clarify the content and structure of one of our courses for the learners. Afterwards, we noticed that it was also useful to shift the focus from purely tools to the wider structure of an innovation approach.

Structure of metaphors

Developing effective analogies to explain complex or abstract concepts and build common ground



Based on Goldschmidt (2001)

What is it?

Metaphors are part of our everyday language and we regularly use them to create a shared understanding. Metaphors usually serve as vehicles to build common ground. They help people to proceed from the known (base concept) to the unknown (target concept) by helping them to understand one conceptual domain in terms of another conceptual domain.[50] Good metaphors are an invitation to see things anew.[51] When used for learning they are powerful tools that can explain complex or abstract concepts, and this model demonstrates how they can be structured to do so.

Why or how would you use it?

There are different types of metaphors[52] and two that are often used are 'mere-appearance' matches and 'analogies'. An example of a mere-appearance match is a zebra crossing: a pedestrian crossing, marked by alternating black and white stripes on the pavement, which is named that as it resembles the patterned skin of a zebra.

The way that analogies work can be illustrated by this example from teaching physics.[53] To explain the abstract concept of electric current, the base concept of water flowing through pipes is often used: electrical wires are presented as analogous to water pipes in order to explain the concept of electrons behaving in a comparable way to water. Analogies focus on similarities in structure rather than appearance.

In our practice we often use analogies to explain the unknown and more abstract concepts to others. We rarely use mere-appearance metaphors. To use analogies effectively, the base concept should be something that everyone is familiar with, and this then helps learners to understand and remember the more abstract concept – as opposed to being given an abstract description.

To create and test your own metaphors, you can take a trial and error approach and see what sticks. Be aware of culturally specific examples, as they may be unfamiliar to your learners and won't resonate. It can be helpful to use themes that most people are familiar with e.g. nature. transportation, cooking or sports. For example, we often use transportation as a base concept to explain the structural difference between simple and complex problems. A flat tyre is usually a simple problem as you can see the cause and you know how to fix it. Traffic congestion, on the other hand, is a complex problem as there are many interconnected elements and actors involved all with different interests.

Typical questions that prompt using this diagram

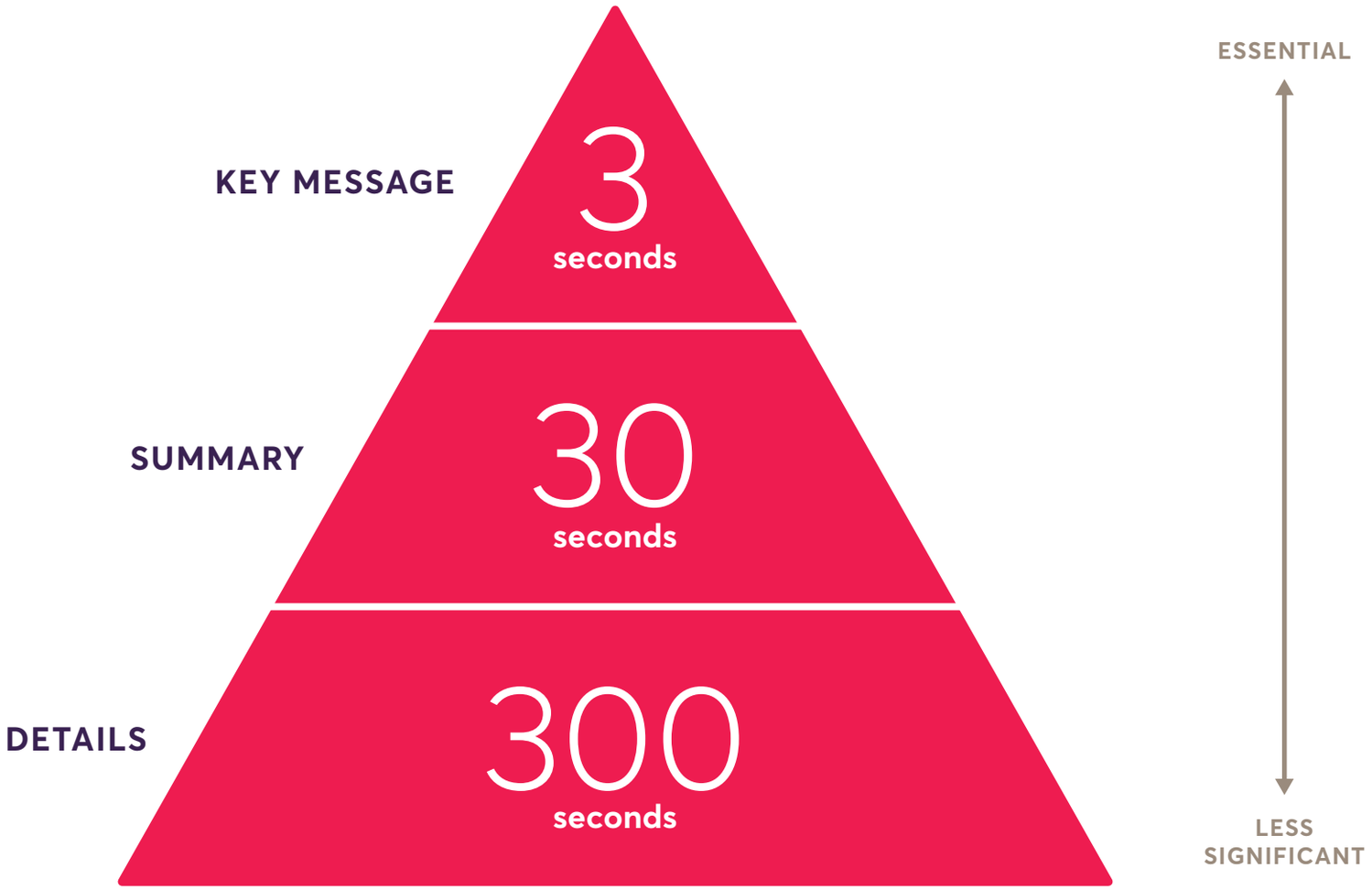
How can you help learners to understand an abstract or complex concept? How can you build a common ground between people with different backgrounds?

Background

This diagram is based on the work of Gabriela Goldschmidt,[54] who describes the role of analogical reasoning in creative problem solving.

3-30-300 second rule

Guidelines for structuring information and making communication more effective



What is it?

The 3-30-300 second rule diagram helps to prioritise and structure information in order to make sharing it more effective. It gives guidance on how to shape your messaging and it can be applied to a variety of communication means e.g. designing your slides, writing an article, sharing research results, designing a poster, presenting a concept, etc.

The idea is to organise and present your information in three tiers. Each tier represents the amount of time needed – as an estimate or rule of thumb – to read or process that information.

3-second tier: the top level message or headline. This could include a short sentence, statement, quote or even a diagram or photograph. You should put this main message up front and draw attention to it so that it's the first thing people look at. Make it captivating and punchy – less is more at this level.

30-second tier: the summary. This introduces the topic or main point you want to make. It's purpose is to quickly inform – like with an elevator pitch. Your summary could be a few lines of text, supported with visuals (e.g. diagrams, models, photographs). In visual terms, this tier is less important than the 3-second tier but should still be prominent. It should visually be the next logical step to explore your information after the 3-second tier.

300-second tier: the details. This contains your data and evidence to explain and underpin your main message. It might include tables with data, quotes, photographs, diagrams or models to build your argument. Consider this layer as a source of inspiration that helps others to explore your ideas and findings. This tier will be the least important visually, but should still be accessible and readable.

Why or how would you use it?

We often use this diagram in conversations with our clients to help them shape their messages, or to prioritise information for learning design. Using the 3-30-300 second rule as a constraint helps you to make decisions about what is important and drill down to the essentials.

The diagram is particularly helpful when you present research results to senior leaders or other stakeholders. It helps share key findings in a short amount of time, but offers the possibility to explore more details when required.

We also use this approach to design slide decks. It stimulates you to really consider what you want to say, and not to clutter your slides with less relevant details. We often limit ourselves to the 3 and 30-second tiers, as the 300-second is adding too much information for a slide.

Typical questions that prompt using this diagram

How might you structure your information and communication?
How do you prioritise your messages?

Background

The idea of the 3-30-300 second rule was developed by Pieter Jan Stappers, a professor at Delft University. He recommended it to his students as a guide for presenting back research results in an oral presentation or as an academic poster. The diagram has similarities with the 'inverted pyramid'[55] that is often used by journalists to structure their articles, and the 'Minto pyramid'[56] that is used by consultants to structure their thinking and communication. It also has elements of the AIDA model[57] (Attention, Interest, Desire and Action). What makes the 3-30-300 second rule slightly different from these models is that the time constraint serves as a practical stimulus to shape your messages.

One-minute definition of public sector innovation

A basic but easy-to-remember definition of innovation, shifting focus to implementation and value

Based on Bason (2010)

What is it?

This diagram is a graphical representation of what we call the 'one-minute definition of public sector innovation'. It highlights the key elements and is easy to remember. We usually present it with this explanation: "(public sector) innovation is: coming up with new ideas that are successfully implemented to create value for citizens and society".

Why or how would you use it?

We often use this definition in our training sessions. Providing this succinct definition enables learners to come up with their own concise but comprehensive definition of innovation. It should help them explain to their colleagues and superiors what innovation is about, avoiding confusion and shifting focus away from preconceived notions such as using the latest technology, mere creative thinking, or doing something new for the sake of it. With the help of this diagram, we emphasise that innovation is more than just running a creative session and sticking post-its on walls. The tricky bit is actually successfully implementing the (good) ideas. We put extra emphasis on 'successful', as ideas need to be tested, developed and improved before they can create public benefit.[58]

Typical questions that prompt using this diagram

How would you define (public sector) innovation? How can you explain that innovation is not (just) about technology and creating ideas?

Background

This diagram was developed by Christian Bason before he joined MindLab.[59] There may be many more definitions around, and some are probably more accurate. But we find this definition useful because it is simple, comprehensive and easy to remember.

Design & innovation processes

Clarifying design and innovation processes and putting them into practice

Basic model of design

A basic change process that can bring clarity when conversations get cluttered

Inspired by Doblin (1987)

What is it?

The essence of design is to initiate change,[60] and its aim is to transform an existing situation into a preferred one.[61] This diagram represents this as a basic process of design. Every design – and change process – starts from this premise.

Why or how would you use it?

We often use this diagram when (strategic) conversations get cluttered in order to go back to the very essence of what we are trying to achieve. Referring to this diagram helps to bring everyone back to the same page and provides clarity and purpose to a meeting. It poses three questions that can help structure strategic thinking: What is the current state? What is the preferred future state? And how might we achieve that future state?

This diagram can be used in multiple ways. We have used it when helping teams set up innovation labs, we have used it numerous times to clarify a learning strategy with our clients, and we have used it in our learning sessions to support learners to take a step back and reflect on the wider innovation process.

Typical questions that prompt using this diagram

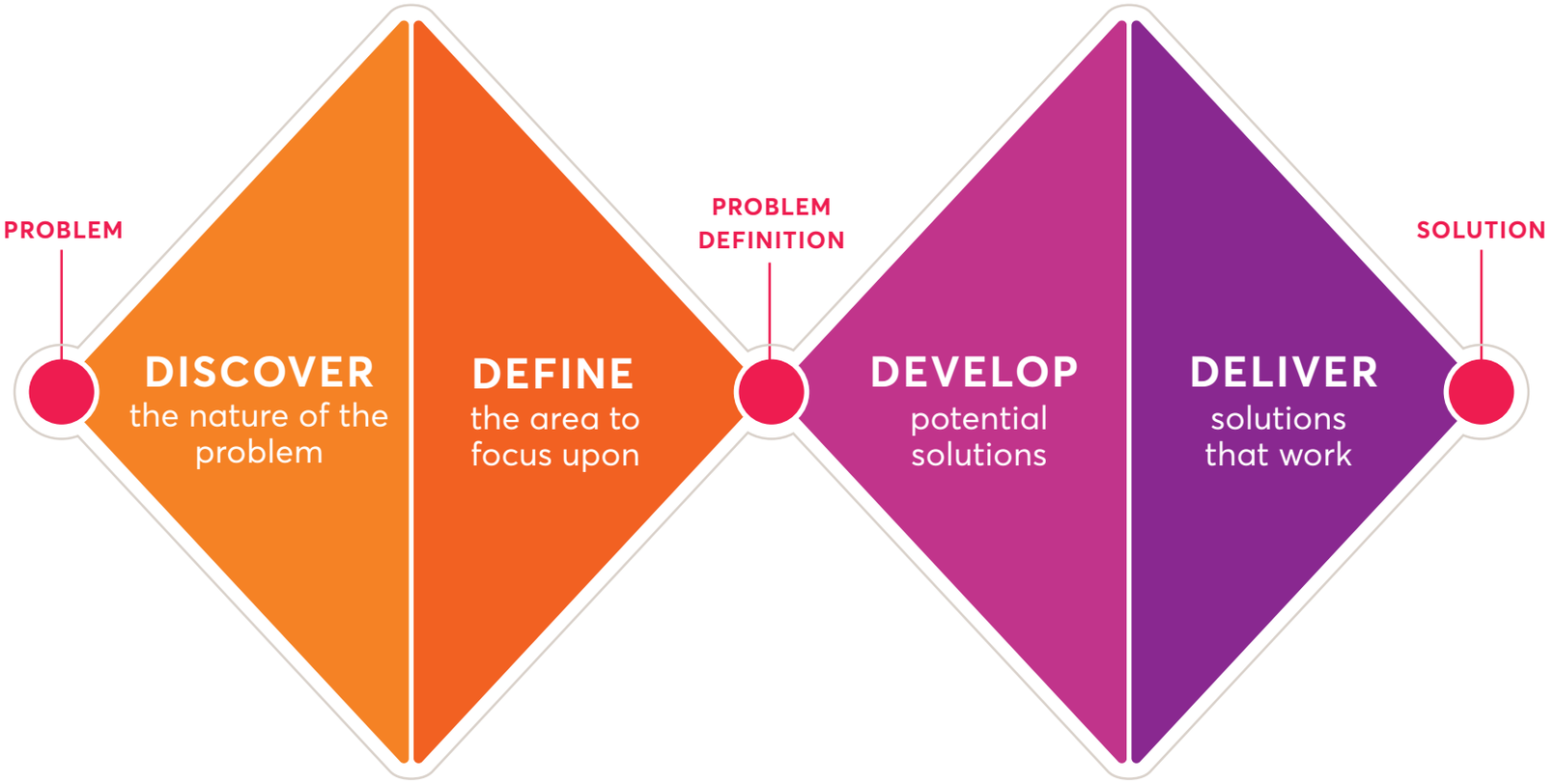
What are you trying to achieve? What is the current situation? How are you going to transform the current situation into the preferred one?

Background

Jay Doblin first presented this model in his paper 'A short, grandiose theory of design'.[62] Although its origin is uncited, it is apparently inspired by Herbert Simon's definition of design: "Everyone designs who devises a course of action aimed at changing existing situations into preferred ones".[63]

Double Diamond design process (Design Council)

An archetypical design process that explains its practice and value



Adapted from Design Council (2015)

What is it?

There are many different diagrams that represent the design process,[64] but they all tend to have several key activities in common. The Double Diamond,[65] created by Design Council, is a useful one for describing the process of design and explaining its value. It is an archetypical design process that includes four phases:

Discover: The process begins with examining the nature of the problem by trying to look at in new ways and gathering insights.

Define: Once you have generated these new insights, you then narrow down and define an area to focus on.

Develop: Next, you move on to generating ideas, exploring potential solutions and testing out multiple possible solutions.

Deliver: Once you have identified the best solution, you then move into planning how you will deliver it.

Why or how would you use it?

The Double Diamond demonstrates the value of both divergent and convergent activities; opening up a problem and then narrowing down again, opening up ideas for solutions and then narrowing down again. Both activities are crucial.

We often see that people begin with a defined problem; they believe that they already know what the problem is. A core element of design however, represented in the Discover phase, is taking a step back and exploring the problem. Although you might think that it is clearly defined, if you go through the Discover process you might find that the nature of the problem is different, particularly if you look at it through the perspective of people. Exploring how people experience problems in their everyday lives can give you very different viewpoints on them, and therefore different solutions.

Although this diagram suggests that the design process is a linear sequence of steps, you might find yourself jumping back and forth between the stages. For example, you might unpack your problem area, define your focus and then build a prototype, but discover that some knowledge is missing that means you need to go back to the discover phase. This is where the principle of iteration is important (see page 70), and that by iterating and improving you will ultimately come up with a better design.

Typical questions that prompt using this diagram

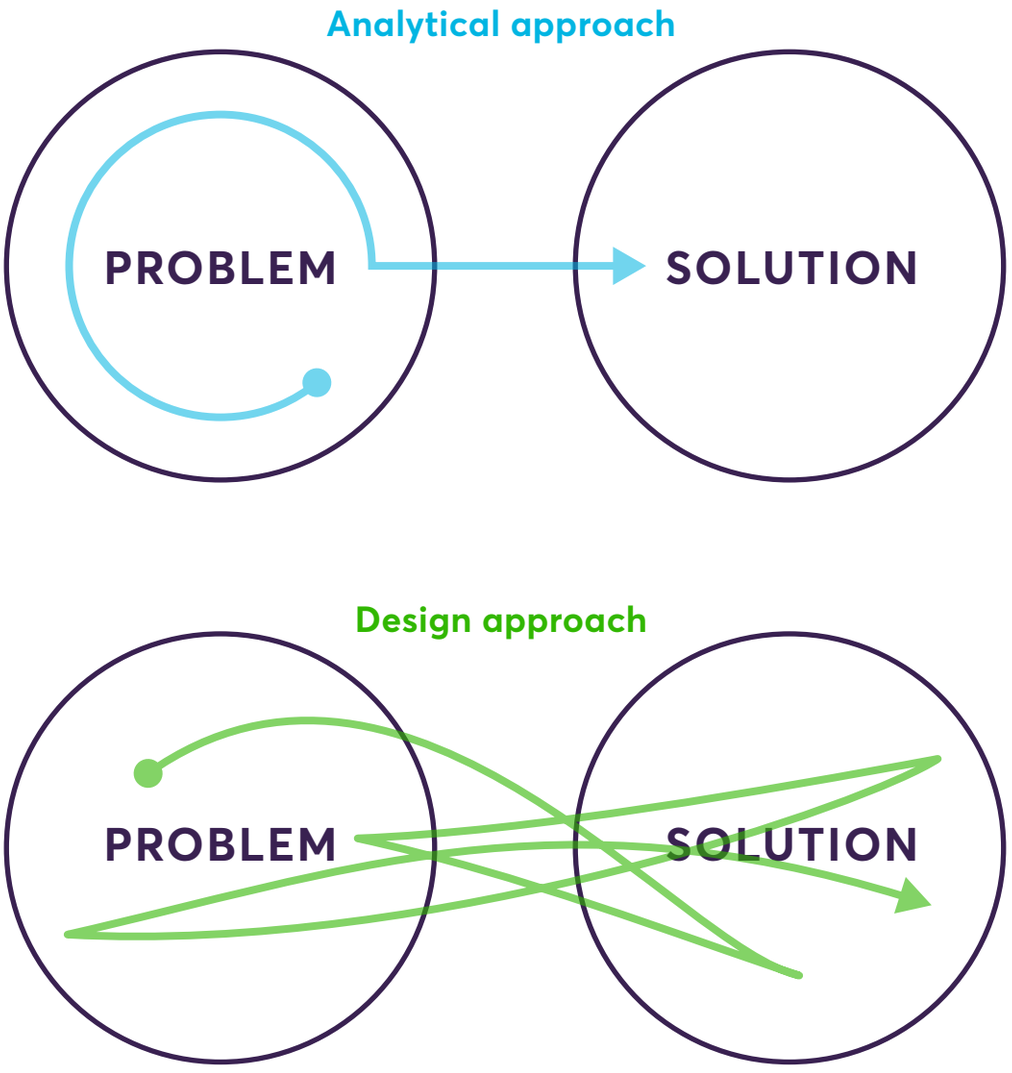
What are the key stages of a design process? How does that relate to your activities? How should you plan your activities? Where are you currently in the process?

Background

The Double Diamond was developed by the Design Council[66] in 2005. Since then it has been used by many design agencies, practitioners and scholars to describe and structure their practice, and some have even developed their own variation.

Problem & solution Space

Two different problem solving styles, using an analytical or design approach



Adapted from Quaggiotto, Leurs & Hazeldine (2016)

What is it?

This diagram explains the relationship between problems and solutions. In a traditional analytical approach, a lot of time and energy is spent analysing the problem so that once the root cause is understood a solution can be developed. Often this solution will be launched with a one-off, 'big bang' implementation.[67]

With a design approach, you might start with the problem and then quickly develop a solution. Instead of overanalysing the problem, you start testing out solutions and take that first jump from the problem space to solution space to see how the world reacts to your idea. This helps to test your assumptions about what works, and the real nature of a problem can often reveal itself once it is put into a solution. You can then go back to redefine the problem and create a new solution, moving back and forth between the two. This is the essence of prototyping; accelerating learning about the problem and solution at the same time.

Why or how would you use it?

This diagram can be used to explain the nature and value of iteration and prototyping; whereas an analytical approach focuses on defining the problem first, a design approach focuses on co-evolving both the problem and solution space together.[68] We often find that people are more comfortable with an analytical approach, whereas a design approach is unfamiliar, and at first it can be quite difficult to get out of the analytical mode of thinking.[69]

We also find this diagram helpful to demonstrate the value of being agile – that your process doesn't need to follow a linear sequence of steps, and that by moving between the problem and solution you can understand both better.

Typical questions that prompt using this diagram

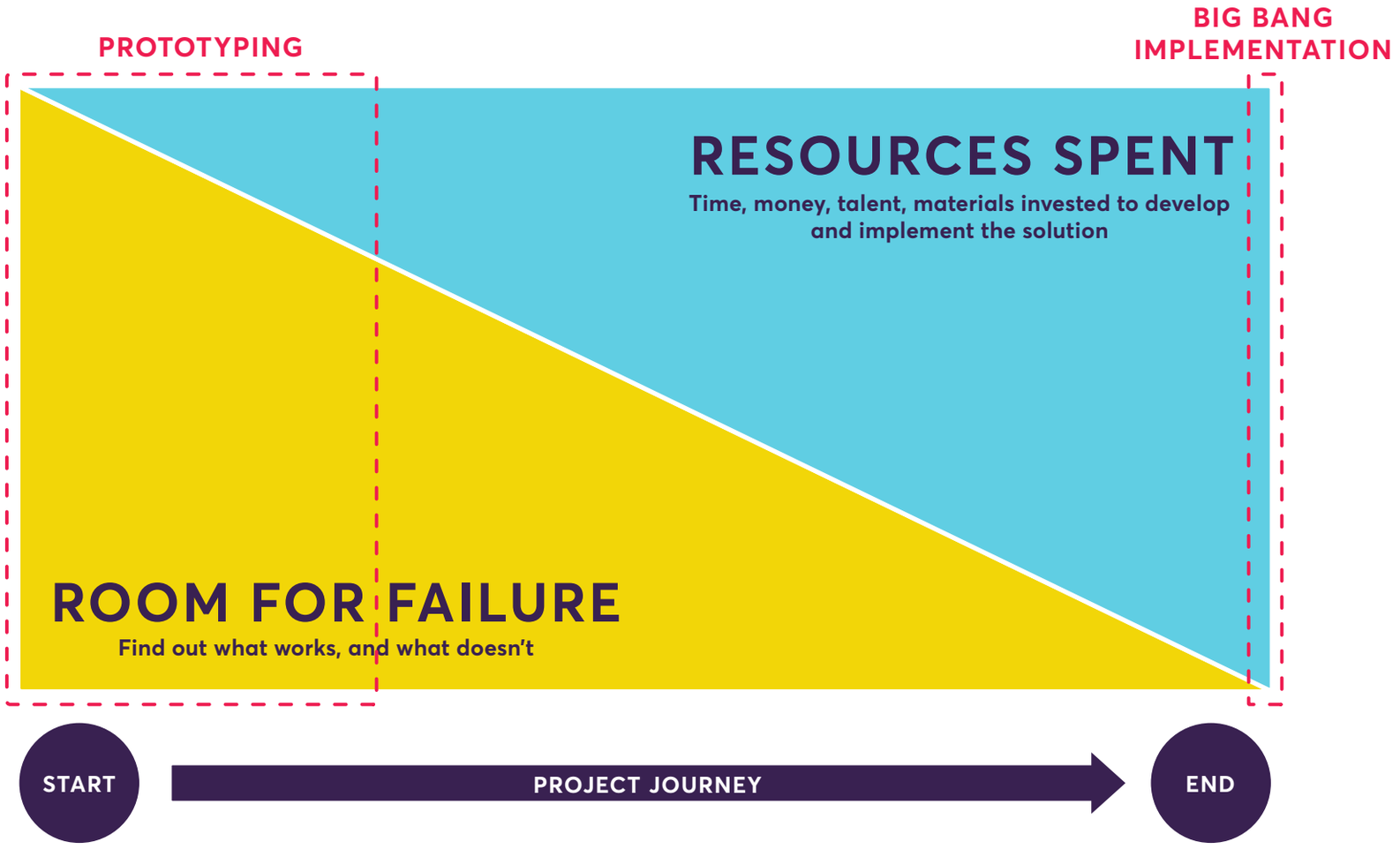
What does iteration look like? What is the value of iteration?

Background

This diagram is a visualisation of the concept of 'co-evolution of problem-solution', a process that was first described by Kees Dorst and Nigel Cross[70] and further explored by Dorst in his paper 'The Problem of Design Problems'.[71]

Prototyping vs big bang implementation

Positioning prototyping as a risk management approach and explaining the value of iteration



What is it?

This diagram explains the value of prototyping and experimentation[72] when developing a new solution. We sometimes see that new solutions are launched with a 'big bang'; ideas are translated directly into plans that are then fully implemented. But no idea is born perfect; they are often based on assumptions and need to be refined and improved. When going directly to implementation, there is little room for failure as resources have already been invested and spent.

Prototyping, on the other hand, aims to identify assumptions and test out ideas at an early stage without using vast amounts of time and resources. Here, there is room to learn from failure.[73] For example, building a paper prototype of an online service may cost you only a few pounds, whereas developing a fully functional website may cost hundreds of thousands of pounds.

Why or how would you use it?

We often use this diagram as part of a prototyping exercise to demonstrate the value of the 'fail early, learn fast' principle. It is particularly effective in conjunction with the Marshmallow Challenge,[74] which demonstrates that you have to challenge your assumptions as quickly and cheaply as possible. It shows that sometimes you should act and see what happens, rather than developing a fully fledged plan.

Typical questions that prompt using this diagram

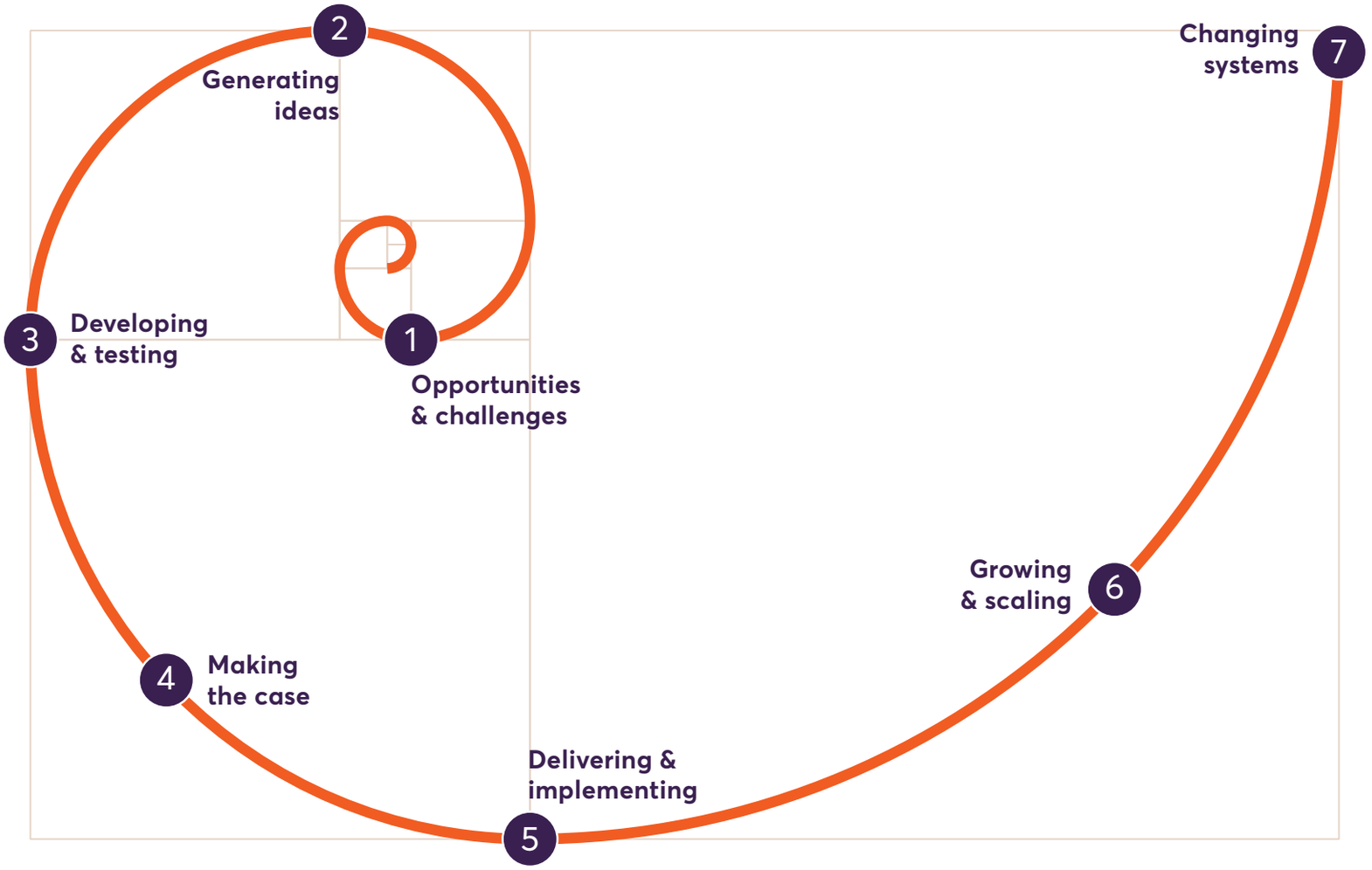
What is the value of prototyping? Why is it important to challenge and test your assumptions early? Why is it sometimes better to act than to plan?

Background

This diagram started out as a quick drawing in one of our training sessions to explain the value of failing early. Over time, we have developed it further and it has become part of our prototyping training sessions.

Innovation spiral (Nesta)

An innovation process for planning and navigating an innovation journey (from defining your challenge to changing systems)



Nesta (n.d.)

What is it?

The innovation spiral was developed by Nesta[75] to generate a shared understanding of what the innovation process looks like and what different stages and actions are involved.

While some tend to associate 'innovation' with creativity and flashes of inspiration, in reality more innovation comes about as the result of a disciplined, planned and managed process. Approaches can range from those that are essentially linear (a sequence of set processes followed for every innovation) versus more iterative, creative, open approaches. The innovation process usually passes through the following seven stages phases:

1. **Exploring opportunities and challenges:** Identifying the opportunity or challenge to which you'd like to respond, and investing time early on to investigate and understand it.

2 **Generating ideas:** Producing, borrowing or stealing ideas, and identifying the ones with real potential.

3. **Developing and testing:** Investigating, learning from and iterating on the idea you want to develop.

4. **Making the case:** Planning and implementing a strategy for gathering evidence on the impact of your solution.

5. **Delivering and implementing:** Planning and organising for the implementation of your solution, including its ownership and the form and structure you need to create to deliver it.

6. **Growing, scaling and spreading:** Developing the conditions for and extending the reach of your solution, including choosing the right growth model and spreading practice.

7. **Changing systems:** Mapping systems to identify the dynamic relationships within the system and where patterns of innovation might affect its development.

Why or how would you use it?

In our sessions, we sometimes see that people already have a solution or an idea in mind and want to move directly to scaling it. We use this diagram to encourage taking a few steps back to first really understand the nature of the problem and what opportunities are out there. It also demonstrates that instead of just fixating on a solution and spending masses of resources to scale it, it is important to test it first. Ideas need to be worked on and go through a number of stages to improve and mature.

Although this diagram suggests that innovation happens as a linear process, in practice you will often go back and forth between different stages. It should serve as a guideline that you can use to navigate and reflect on this process; looking back on your previous steps, seeing where you are, and looking ahead and planing your next moves.

Typical questions that prompt using this diagram

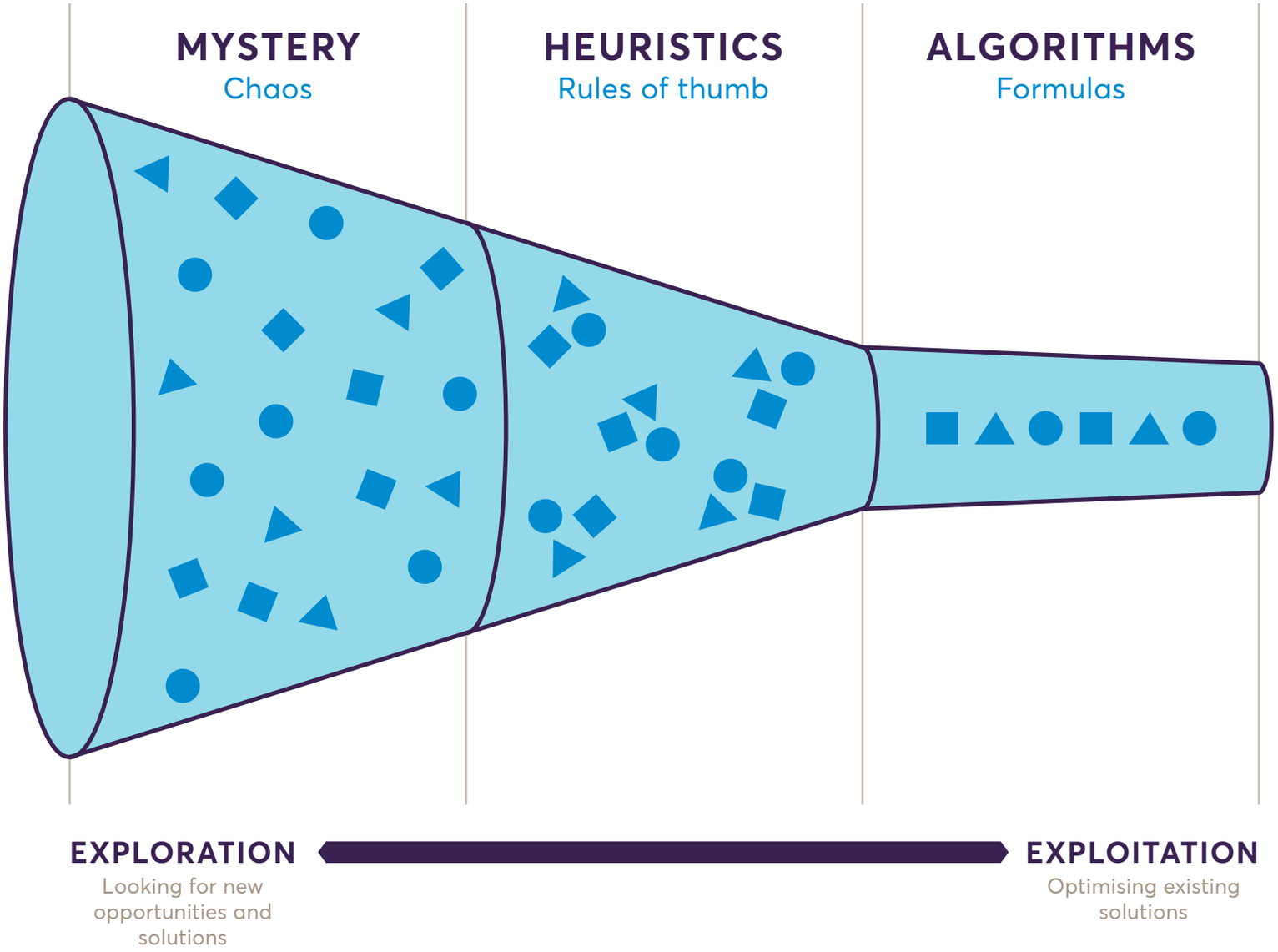
What might your innovation journey or process look like? How do you take ideas from inception to impact?

Background

An earlier version of this diagram features in the 'The Open Book of Social Innovation'.[76] The version we currently use at Nesta is slightly adapted to our programmes and has seven instead of six stages.

Knowledge funnel (Martin)

Three categories through which knowledge in innovation processes naturally develops



Based on Martin (2009b; 2010)

What is it?

The knowledge funnel developed by Roger Martin shows the three categories through which knowledge in innovation processes naturally develops:

Mystery stage: At this stage, what you're looking at is often unclear and the relationship between cause and effect is uncertain.

Heuristics stage: As understanding grows, rules of thumb about what works and what doesn't begin to emerge.

Algorithm stage: Eventually, these heuristics develop into success formulas where processes are well understood and knowledge is capitalised on.

Roger Martin uses the fast-food chain McDonald's as an example[77] to illustrate how the knowledge funnel works. When McDonald's was established in 1940, fast-food was in its infancy and it was unclear – or a mystery – how to run a drive-in hamburger restaurant successfully. After a decade of experimentation with various menus and formats, they developed rules of thumb for what worked well. And after that, with more trial and error, they established success formulas – e.g. with very precise directions for how to run the kitchen – allowing them to scale their business globally as a franchise.

This example shows how a company can explore new possibilities through experimentation, and how over time codifying operations can help to systemise the business, resulting in the creation and exploitation of a success formula.

Why or how would you use it?

We use this diagram to explain that there are different types of knowledge, and to demonstrate the value of exploratory activities.

There is often a lot of focus on optimising existing solutions, which are at the algorithm stage. This type of exploitation is essential when running a public services or a business, but it is important to also think about exploration – looking for new solutions. While there doesn't need to be an equal split, time and resources should be allocated to exploring the mystery stage and keeping attuned to outside environments.

We would describe exploitation and exploration as two different mindsets. Some people are comfortable with formulas, but anxious around the mystery stage, whereas others are more comfortable in chaos and feel uninspired at the algorithm stage. Many organisations try to achieve economy of scale by rushing quickly through the three stages to get to success formulas without investing a lot of time or energy. This diagram suggests that instead you need an ambidexterity in your organisation, where you combine exploitation with exploration to develop the best possible solutions.[78]

Typical questions that prompt using this diagram

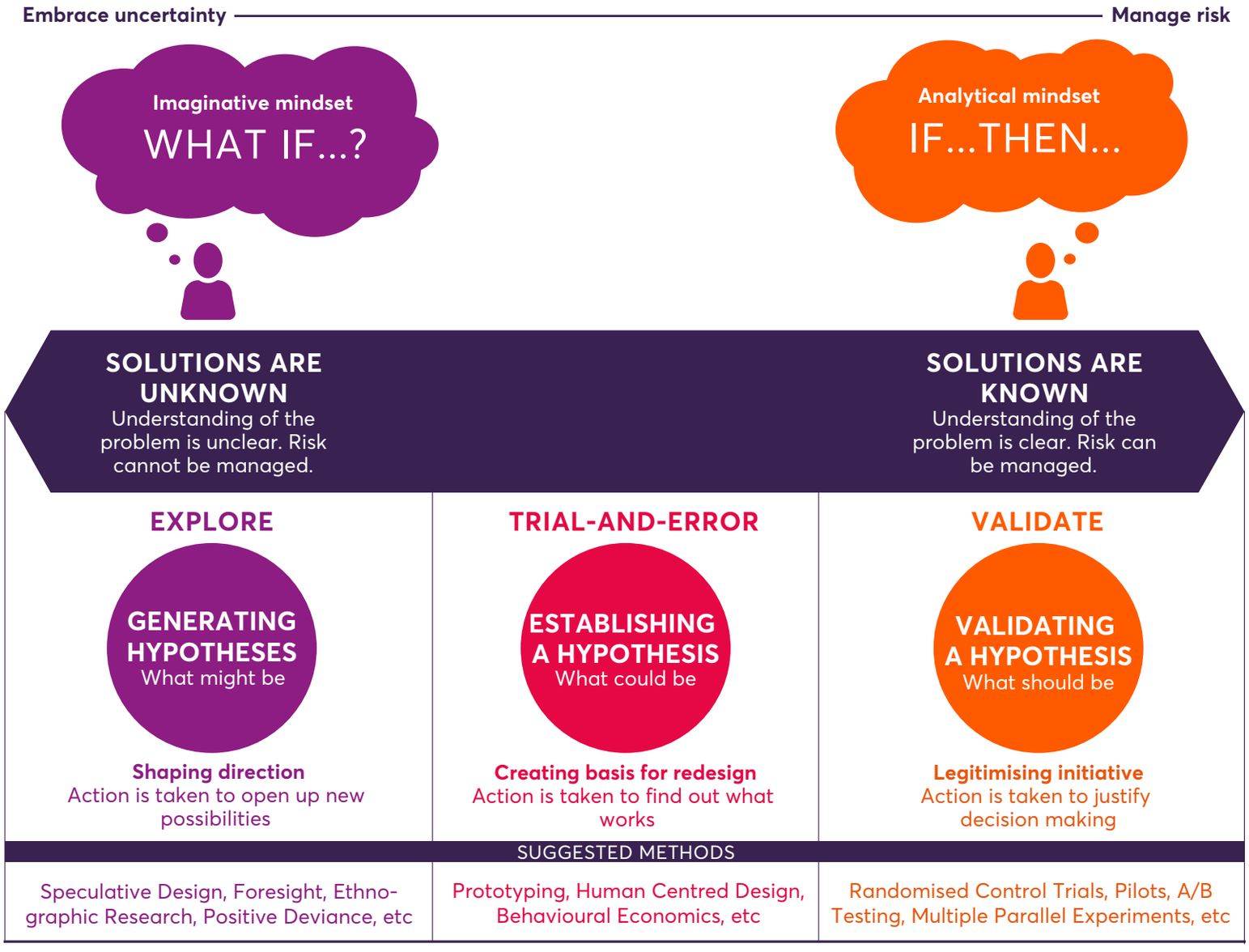
Why should you try to make sense of chaos? How do you strike an effective balance between exploration and exploitation? Why should you invest in both?

Background

This model was first described in Roger Martin's book 'The Design of Business'.[79] In his work, he describes how design thinking, as an innovation method, reconciles different mindsets (exploration versus exploitation) better business outcomes.

Continuum of experimentation

A categorisation of experimental approaches for planning and managing experiments



Adapted from Christiansen, Leurs & Quaggiotto (2017)

What is it?

Experimentation in government can best be seen as a continuum of different approaches, rather than as one method. Different methods should be used if solutions – and their intended outcomes – are known, partially known (or assumed), or not known at all. We have grouped these methods into three categories of experimentation:[80]

Generating hypotheses: Shaping direction by generating multiple hypotheses for change.

Establishing a hypothesis: Developing and establishing particular hypotheses to test their potential value-creation.

Validating a hypothesis: Validating the fit and function of a particular hypothesis to be turned into an intervention.

On the left side of the continuum, where probabilities and solutions are unknown, an imaginative mindset is required. Experiments at this end are exploratory and aim to identify new frames to generate new thinking and action. Hypothesis generation is driven by exploring options and asking 'what if?'. Speculative design[81] is one example of the methods that use this process of discovery.

At the other end, where probabilities are known, activities focus on justifying decisions and managing risk. This space is driven by the analytical mindset and employs rigorous procedures to test established hypotheses before scaling them: "If we do this, then we believe this will happen". Randomised control trials[82] (RCTs) are a prominent method that is often used in this space.

In between these is a category that builds on both the imaginative and analytical mindsets, what we call the 'trial-and-error' approach. This part of the experimental process involves identifying, testing and/or challenging existing assumptions and learning about the fit and function of the potential solution.[83] Here, a hypothesis is tested in order to understand its potential as well as any unanticipated effects – good or bad. Prototyping[84] is a typical method that follows this trial-and-error approach of testing ideas at an early stage and learning fast from failure.

As a whole, the continuum is meant to highlight that successful experimentation involves a dynamic and iterative process, and that there are different questions to ask, activities to be aware of, and methods to use throughout the experimental process.

Why or how would you use it?

We feel that too often people equate experimentation in government with running RCTs. While they are certainly an important part of validating a hypothesis, they are less useful when the understanding of a problem is unclear or the opportunity space needs to be re-imagined.

The continuum attempts to combine the methods and approaches inspired by both analytical and imaginative mindsets – arguing that it is not an 'either or' situation. Rather, there is a need to apply experimental approaches from different disciplines, such as social and natural sciences, arts, data analytics and design.

Typical questions that prompt using this diagram

What is meant by experimentation? What methods might you consider for your experiments? What does an experimental mindset in government innovation actually involve?

Background

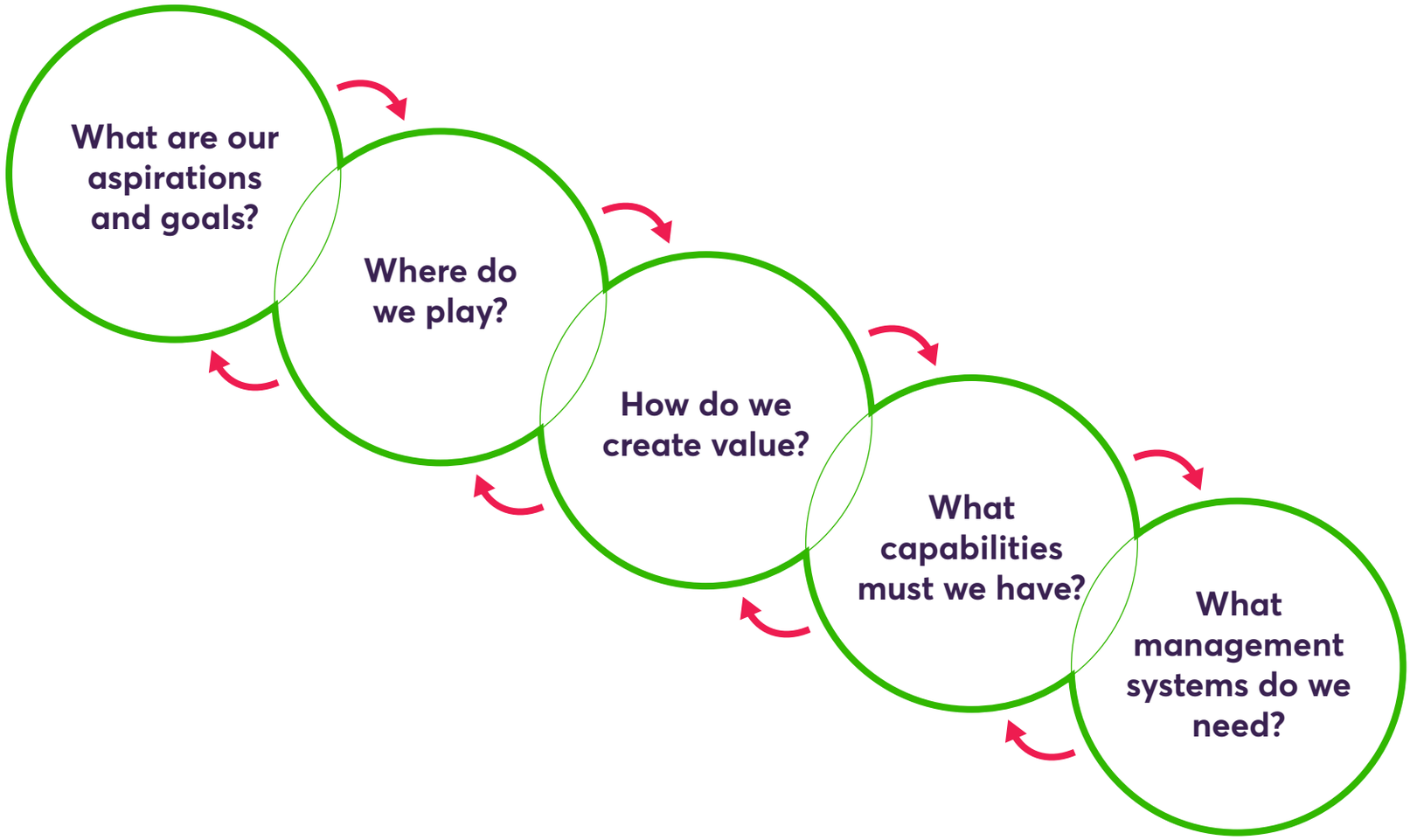
This diagram is a result of reflecting on own experiences as innovation practitioners, as well as the many conversations we've had with colleagues and peers. In particular the ideas of Christian Bason[85] have been a valuable source of inspiration, and the work of Donald Schön[86] has helped us to accelerate our thinking. The diagram is described in more detail in our article on experimental culture.[87]

Team & innovation strategy

Thinking about and setting up a strategy for your team or innovation approach

Five strategic questions (Lafley & Martin)

A framework with five fundamental questions for strategic decision making



Based on Lafley & Martin (2013)

What is it?

This diagram presents a straightforward yet comprehensive framework for developing a strategy for your (innovation) team or organisation. It builds on the premise that strategy is about making 'choices': what you will do, and what you will not do.[88] It involves five questions that prompt you to consider key fundamental choices.

1. **What are our aspiration and goals?** What are we trying to achieve? What does our desired future[89] look like?

2. **Where do we play?** What problem areas, domains, audiences, regions are we focusing on?

3. **How do we create value?** What public benefit are we creating? And how do we create it?

4. **What capabilities must we have?** What do we need to create value? What skills and capabilities do we need? What does our team design look like?

5. **What management systems do we need?** What systems enable the team to generate value? How do we assess impact? How are we being held accountable?

The diagram is designed for developing strategic capability throughout an organisation. It should enable strategic thinking at all levels of an organisation[90] – no matter the size, type or context of an organisation.

Why or how would you use it?

Strategy often connotes planning,[91] which can seem like a straightforward process – at least on paper. When dealing with complex issues or dynamic external environments, however, having stringent plans means that a strategy can lack the agility to adapt to new or unexpected situations. What is interesting about this diagram is that it is an interactive model; it considers strategy as a dynamic process where you continuously consider these five aspects, and give ongoing direction to your team and organisation in order to remain relevant and generate impact. This means that you can move back and forth between the questions. And once you have gone through them all, you will likely need to go through them again to make sure they are still aligned.

We use this diagram in strategic conversations with clients, for example when helping them to set up an innovation lab. It is helpful to go through it and discuss a strategy over a few hours, focusing on the very essentials. We also use it ourselves for our own team strategy. We frequently – every six or twelve months – reflect on these questions to verify if we are still on track, and whether we need to revise our strategy or pay more attention to executing it.

We have discovered some other uses for it too. As well as using it for developing a team or organisational strategy, we also use it for developing learning strategies. It requires some slight adjustments, but most of the structure still holds.

Typical questions that prompt using this diagram

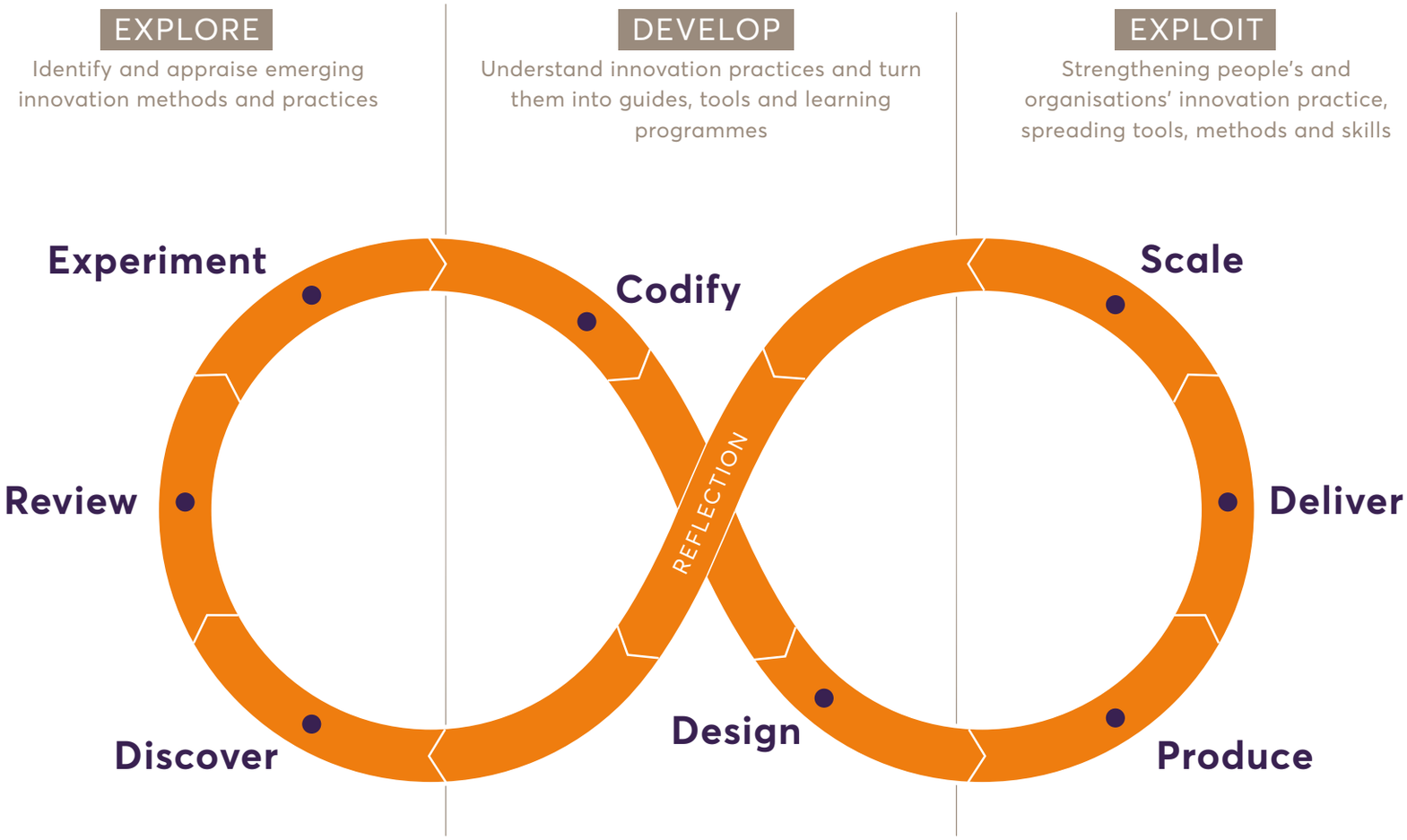
What are you trying to achieve, what change do you want to create? What do you need to do to make that happen? What shouldn't you be doing?

Background

This diagram was originally developed by A.G. Lafley (former CEO of Procter & Gamble) and Roger Martin (Professor of Strategic Management at the Rotman School of Management) and discussed in their book 'Playing to Win: How Strategy Really Works'.[92] The book focuses on strategy development for commercial enterprises – which explains the reference to 'winning' in the title. With some adaptations (e.g. changing 'winning' to 'creating value') it can be used by non-commercial and public sector organisations as well.

Nesta's Innovation Skills team operating model

An overview of our key activities to support team design and reflection



What is it?

Nesta's Innovation Skills team aims to demystify innovation tools, methods and skills, and to spread and embed them in everyday practice. This diagram presents the key activities and functions that help us to develop the knowledge required to deliver on our mission. This operating model is structured into three main activities: exploration, development and exploitation.[93]

Exploration focuses on identifying emerging innovation methods and practices. The main activities are: *discovering* and identifying emerging practices (e.g. horizon scanning); *reviewing* and selecting the practices with most potential and value to the innovation space; and *experimenting* to learn how a method or practice works.

Development focuses on analysing a practice or method to understand its underpinning principles and mechanisms, and then turning these insights into a learning offer (e.g. guides, tools or programmes). The main activities are: identifying and *codifying* principles, processes, methods and tools (also see the diagram 'taxonomy of innovation methods' on page 56); and then using those as the basis for *designing* learning journeys and assets.

Exploitation focuses on spreading tools, methods and skills, and embedding them in everyday practice. The main activities are: *producing* learning materials and putting together learning programmes; and then *delivering* the learning programmes. Lastly, we aim to *scale* our offers when possible. This involves systemising our learning programmes and managing networks of delivery partners.

The activities are structured along a helix, illustrating an infinite and dynamic process of continuous scanning, sensemaking, developing, delivering, testing and reflecting.

Why or how would you use it?

We use this diagram to explain to internal and external stakeholders how we work and what our main activities are. It played a role when our team began to grow, as it helped us to reflect on our team design and the processes that we use to develop, deliver and scale our learning programmes. Visualising it helped us to rethink the setup of our team (strengths, functions, responsibilities and focus areas) and be more explicit about what our key activities are and how they are aligned.

We have also used this diagram to design programmes like *States of Change* and to reflect on our research, development and design processes.

Typical questions that prompt using this diagram

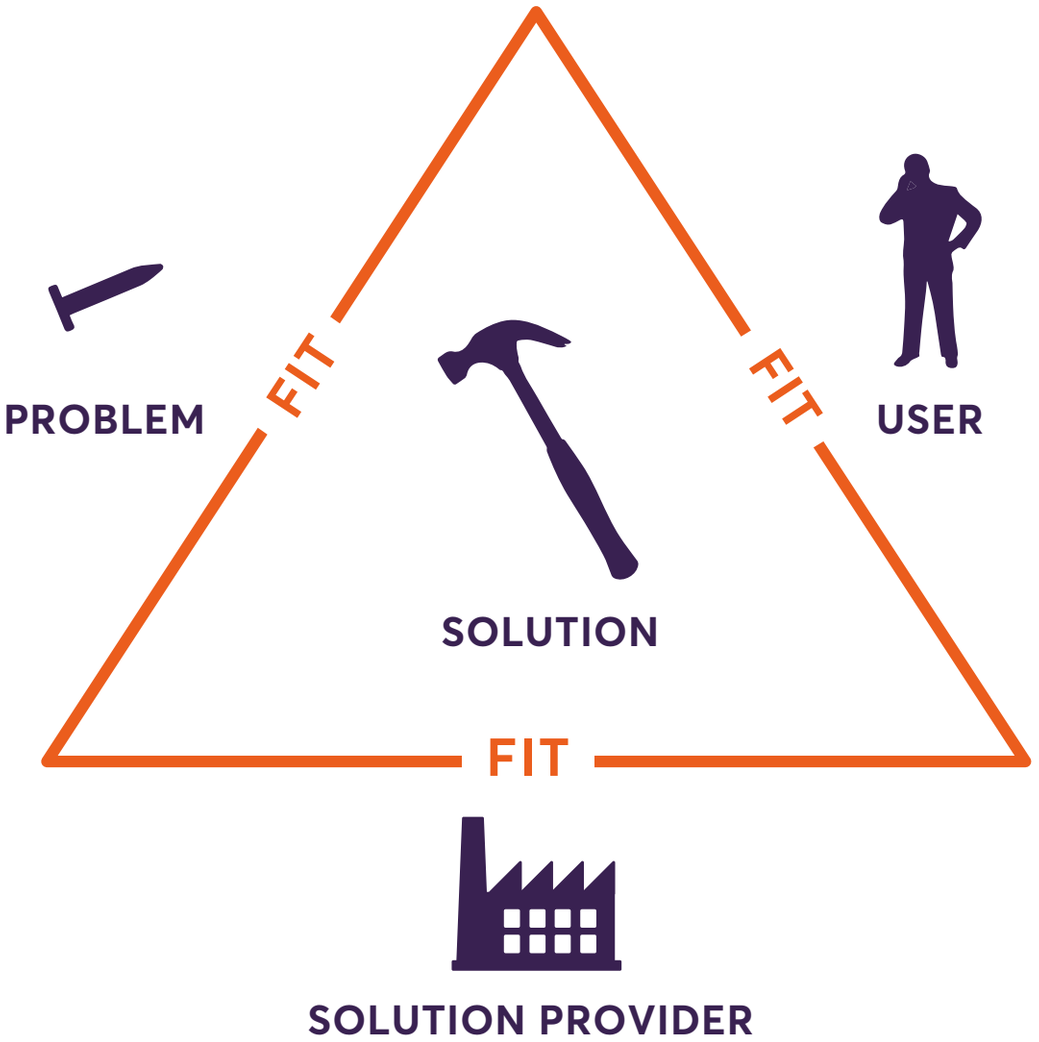
How do you create value? What are your key activities? How do you align them? What should be the focus areas of each team member? What activities are needed to turn emerging practices into learning offers?

Background

We developed this diagram when our team started to grow in size and our projects became more complex, as we needed a comprehensive framework for describing how we work. It is inspired by Roger Martin's knowledge funnel (see page 76).

Purpose of design: creating a more appropriate fit[94]

An overview of the key elements of design for explaining its essence and key principles



Leurs & Roberts (2017)

What is it?

There are many ways to describe design, but to understand its value and principles it is helpful to look at its purpose. The concept of 'fit' is key to design activity, as design attempts to generate a fit across a number of different elements. This diagram illustrates these connections, which include:

1. **Solution-problem fit:** The solution should provide the right fit for the problem. For example, if the problem is how to drive a nail into a wall, then a hammer offers a good solution, or 'fit'. But if we want to put a screw into the wall, it's a less appropriate tool. In that case, a screwdriver would offer a better fit.

2. **Solution-user fit:** The solution should fit with the user's physical and cognitive capabilities, preferences and needs. For example, a trained craftsman who regularly uses carpentry tools is likely to have different requirements to a layman who may only use them occasionally.

3. **Solution-provider fit:** The solution should fit with those who are going to provide it, the solution provider(s). A solution that has a perfect fit with the problem and end user, but that is costly to create or complicated to deliver, is unlikely to be sustainable.

This diagram is, of course, a simplified representation and it doesn't take into account the complexity that surrounds these elements in reality. But it is still useful for understanding the key relations around the concept of 'fit'.

Why or how would you use it?

We often use this diagram to help learners understand the fundamentals of design. The metaphor of the hammer and nail seems to resonate well with our audiences. The diagram also helps learners to translate the idea of 'fit' to other areas that involve design activity, such as policy making.[95] Take, for example, the problem of growing childhood obesity. A government might tax sugar-sweetened drinks as a policy intervention to tackle this issue. But how does this fit with the motivations and everyday routines of children? Will it change their behaviour? And how does it fit with government processes? How will this policy be enforced, and what departments will need to collaborate on it? How much manpower will it take?

Bear in mind that design doesn't try to create a perfect fit across all three dimensions; rather it aims to create a fit that's good enough.[96] In order to do that, there are four principles that help generate this fit and that everybody can learn and use: empathising, iterating, collaborating and visualising.[97] We often use the 'fit' diagram as a segue to introduce these principles to our learners.

Typical questions that prompt using this diagram

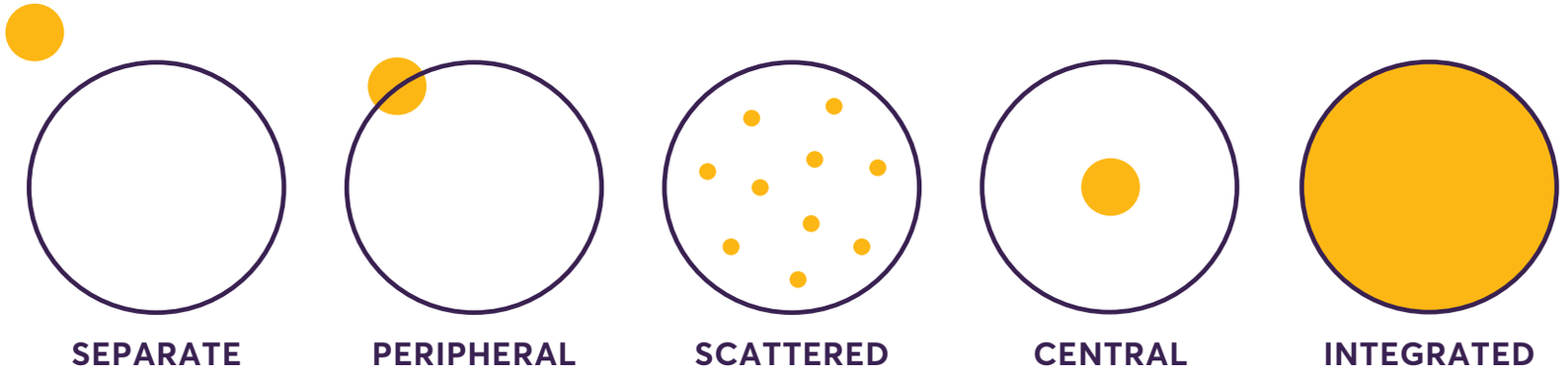
How would you describe the purpose of design in just a few words? What makes a good design solution?

Background

The idea of fit was inspired by a blog post by Bret Victor on the future of interaction design.[98] He focuses on the fit between tools, human capabilities and human needs. We expanded on this concept and used it to explain the relationship between solutions and problems (exploring the effectiveness of a solution), solutions and users (exploring the suitability of a solution) and solutions and the providers (exploring the viability of a solution).

Innovation functions in government organisations

Five possible configurations of innovation functions within government for reflection and design



Based on Junginger (2009)

What is it?

This diagram illustrates where innovation capabilities and methods can be located in a government organisation in order to bring new tools, methods and skills into it.

Separate: Innovation capabilities are located outside government. In this configuration, external teams usually work on public issues via a project basis. From this detached position, these teams are able to demonstrate the value of innovation, but they may be too separate to build innovation capacity inside government.

Peripheral: Innovation capabilities are a part of the organisation, but might be considered too experimental to be fully integrated. Teams in this configuration enable experimentation – finding out what works and what doesn't – in environments that are usually risk averse. Such teams often receive seed funding from government bodies, or work on a project basis. In the latter case, procurement is often seen as a hurdle.

Scattered: Innovation capability is spread across an organisation in small – and often disconnected – pockets of activity. These initiatives are led by small teams or individuals, each working on their own projects with their own funding or grants. In this configuration, there is a risk that each team is (re)inventing the same wheel or wasting energy by competing to secure resources. Change may also never happen at a wider, more systemic level as initiatives are too small and disjointed.

Central: Innovation capability is located at a central place in an organisation, often at a strategic unit or executive agency (e.g. Prime Minister's Office), serving one or multiple ministries or working across departments. Teams with direct access to executive power help establish the mandate for change, but can risk being seen as an elite group working on pet projects.

Integrated: Innovation capability is permeated throughout the organisation and embedded in everyday practice. Achieving this level is hard, and maintaining it is perhaps even harder.

Why or how would you use it?

When setting up a lab or innovation team, there are many possible routes to take – but often with no certainty as to which is the right way to go. There are often more questions than answers, and this diagram helps to explore and identify those questions. It supports strategic conversations when considering whether to position an innovation team or function inside or outside of a government agency. It is also helpful to explain how innovation teams are set up and governed.[99]

Typical questions that prompt using this diagram

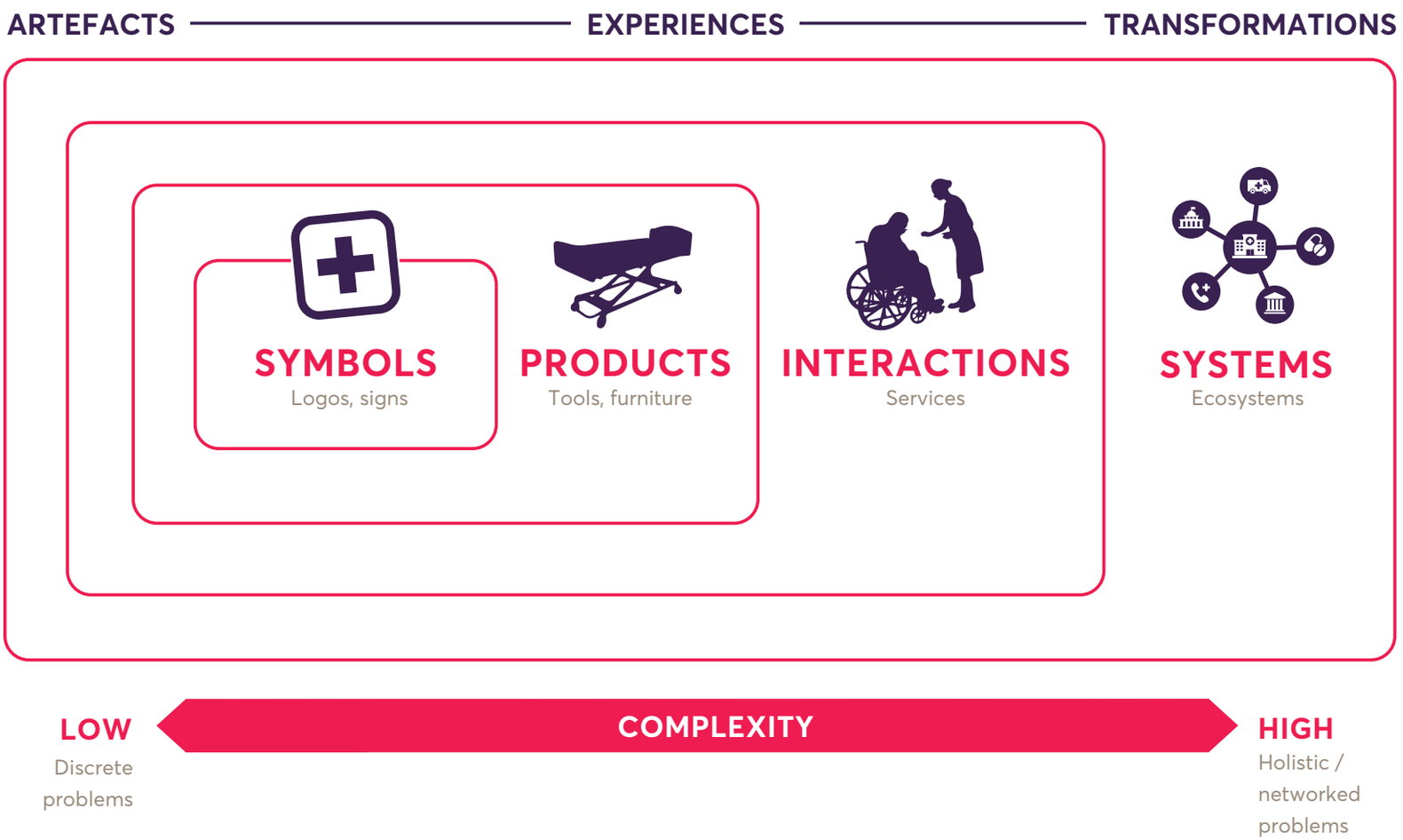
Where should you position your team? What might the relationship between the (innovation) team and sponsor look like?

Background

Sabine Junginger developed the original version of this diagram[100] to illustrate the distinct relationships between designing, changing and organising, explaining how and why organisations tend to employ design capabilities or activities. In this diagram, Junginger focuses specifically on the relationship of design and change, which has implications to innovation capabilities in general. Junginger's work originally mentions four categories: seperate, peripheral, central and integrated. We have added 'scattered' as an extra category to her diagram.

Four levels of design (Buchanan)[101]

Clarifying the different levels of design and positioning strategic design



Inspired by Buchanan (2001)

What is it?

The tricky thing about defining design is that, by its very nature, design exists on many levels. This diagram helps to bring clarity by categorising design activity into four orders. It illustrates how design as a discipline has moved from the traditional concept of visual or tangible artefacts through to orchestrating interactions and experiences, and to transforming systems.

For example, designing a symbol or a logo is relatively straightforward, but designing for systems is much more complex and multifaceted. It involves many actors, often with varying or conflicting objectives, and is concerned with situations that might change over time. Design thinking, in that sense, often refers to the mindset and skills needed for the latter two orders – interactions and systems.

Why or how would you use it?

This diagram demonstrates the scope and role design can play. It also highlights how we are naturally drawn to the first two orders – graphic design and product design – when asked to consider what design is. Over the past couple of decades however, design as a profession has been shifting into the other stages where design takes on a more strategic function as complexity increases.[102] Different types of design focus on different categories of problems varying in complexity, and this diagram is helpful to clarify what order of design we are talking about.

This particularly applies when we talk about design in the field of innovation, as our focus is more on what we might call 'strategic design' or 'design thinking', which involves the third (interactions) and fourth (systems) orders of design.

Typical questions that prompt using this diagram

What do you mean by design? What are the differences between traditional forms of design (e.g. graphic design, product design, architecture) and emerging forms of design (e.g. interaction design, service design, strategic design)?

Background

Design professor Richard Buchanan originally described these 'four orders of design' in his 1992 paper 'Wicked Problems in Design Thinking'.[103] Although this categorisation[104] was developed 25 years ago, it still holds true today and has perhaps become even more relevant. In a later paper, Buchanan presented these orders as a diagram[105] that has since been widely adopted and adapted by the design community.

References

Endnotes

1. Formerly know as 'Book of Models'.
2. For example, this journey served as a blueprint to shape the learning narrative of Design for Europe and to build an offer that identified with the challenges of the programme's key audiences.
3. See Prochaska & DiClemente (1982)
4. Kolb (1984)
5. Also see Kolb's 'experiential learning cycle' in this document on page 14.
6. There are many ways of describing what a curriculum entails. In our practice we refer to a curriculum as a collection of related learning programmes (i.e. courses).
7. Taba (1962)
8. See page 40 for more on this and the zone of proximal development.
9. Mulgan (2015)
10. Lombardo & Eichinger (1996)
11. Kajewski & Madsen (2014)
12. Mulgan (2015)
13. Christiansen, Leurs & Duggan (2017)
14. See for an introduction to learning agility the work of Amato & Molokhia (2016) or the white paper from Mitchinson & Morris (2012).
15. See the diagram 'modes of learning' in this document, page 26.
16. Hutchinson (2013)
17. See Burd & Hallsworth (2016)
18. Meijer (2014)
19. Also see the 'AMO framework' in this document on page 28.
20. See Christiansen, Caffin & Leurs (2016)
21. See Mulgan (2015)
22. Based on the work of Dreyfus (2004)
23. Lawson & Dorst (2009)
24. See Adams (2016)
25. Bloom, Engelhart, Furst, Hill & Krathwohl (1956)
26. Krathwohl (2002)
27. See the diagram 'Nesta's Innovation Skills team pedagogy' on page 24.
28. The support that is provided to the learners is often referred to as "scaffolding".
29. Vygotsky (1980)
30. Csíkszentmihályi (1990)
31. Originally the cone was introduced as the 'Cone of Experience', but we refer to it as the 'Cone of Learning' as it is more commonly used.
32. Dale (1946)
33. This text is an excerpt from our blog post 'What are the skills and attitudes for successful public problem solving?' (Christiansen, Leurs & Duggan, 2017)
34. Christiansen, Caffin & Leurs (2016)
35. The nature of many innovation methods is to identify, challenge and reduce our cognitive (e.g. assumptions), emotional (e.g. overconfidence) and social (e.g. group think) biases that (mis)inform and affect our decision making. See for example Liedtka (2015), in her work she explores how design thinking addresses such biases.
36. Such dynamics have been studied and described by Mihaly Csíkszentmihályi's work on creative personalities. He describes creative personalities as 'complex', involving ten paradoxical traits (e.g. being smart yet naive at the same time, being playful as well as disciplined, being both extroverted and introverted). Creative personalities alter their traits as the situation requires. In that sense they embody 'multitudes' of personalities, rather than adhering to one personality type. Roger Martin (2009a) also describes a similar dynamic in his book 'The Opposable Mind'. Instead of an innate trait or talent, he considers the ability to hold opposing ideas and mindsets as a habit of thought. He describes this ability as 'integrative thinking' that can be consciously developed and nurtured.
37. Christiansen, Leurs & Duggan (2017)
38. Note, these pairs don't represent a linear process (e.g. moving from people to systems) but instead represent the interactions between two principles and other pairs of principles.
39. Sinder (2017), also see Wang (2013)
40. See Geoff Mulgan's (2014) critical remarks on design as an innovation method. Also consider that the logic of design thinking is often described as abductive reasoning (see Cross, 1990, 2011; Dorst, 2010, 2011; March, 1976; Kolko, 2010a, 2010b; Roozenburg, 1993; Roozenburg & Eekels, 1995). Decisions are driven by "what might be" (Martin, 2009) which means that decisions are based on taking a "best guess" (Kolko, 2010a, 2010b). This logic is different from deductive and inductive reasoning which generally form the basis of scientific methods. Such logic adds rigour to a process and helps develop an evidence base for what works. This doesn't mean however that either one of these types of logic is bad; instead they serve different purposes.
41. Roumiantseva (2016)
42. See for example Puttick, Baeck & Colligan (2014) and Quaggiotto (2016)
43. See for example Ryan (2016)
44. Christiansen, Caffin & Leurs (2016)
45. UNDP (2017)
46. Christiansen, Leurs & Duggan (2017)
47. Puttick, Baeck & Colligan (2014)
48. Christiansen, Caffin & Leurs (2016)
49. Leurs & Roberts (2017)
50. Kövecses (2002, p.4)
51. Barrett & Cooperrider (1990)

52. Gentner & Markman (1997)
53. See Gentner & Gentner (1983)
54. Goldschmidt (2001)
55. See en.wikipedia.org/wiki/Inverted_pyramid_(journalism)
56. Minto (2009)
57. See en.wikipedia.org/wiki/AIDA_(marketing)
58. Mulgan (2014)
59. Bason (2010)
60. Jones (1970/1992)
61. Simon (1969/1996)
62. Doblin (1987)
63. Simon (1969/1996)
64. See the compendium of design processes compiled by Hugh Dubberly (2005)
65. Design Council (2015)
66. Design Council (2007)
67. Also see the diagram 'prototyping vs big bang implementation' in this document, page 72.
68. See Dorst (2003)
69. Our blog 'Fall in love with the solution, not the problem' (Quaggiotto, Leurs & Hazeldine, 2016) explores this further and describes even a third – slightly more uncommon – strategy that takes solutions that already exist as a starting point of the innovation process.
70. Dorst & Cross (2001)
71. Dorst (2003)
72. Christiansen, Leurs & Quaggiotto (2017)
73. Also see the 'problem & solution space' diagram in this document, page 68.
74. Wujec (2015)
75. See http://www.nesta.org.uk/resources/understand-how-innovation-works
76. Murray, Caulier-Grice & Mulgan (2010)
77. See Martin (2010)
78. O'Reilly and Tushman (2004) describe this as the ambidextrous organisation.
79. Martin (2009b); also see Martin (2010) for a short explanation of the key concepts.
80. Based on the work of Donald Schön's Reflective Practitioner (1984) and Christian Bason (2016)
81. Kolehmainen (2016)
82. Haynes, Service, Goldacre & Torgerson (2012)
83. Leurs & Roberts (2017)
84. See Nesta's (2013) Prototyping Framework
85. Bason (2016)
86. See Donald Schön's Reflective Practitioner (1984)
87. Christiansen, Leurs & Quaggiotto (2017)
88. Lafley, Martin & Riel (2013)
89. See page 66 for the diagram 'basic model of design' in this document.
90. Lafley & Martin (2013)
91. Mintzberg (1994)
92. Lafley & Martin (2013). For a short but comprehensive introduction to the framework see the paper 'A Playbook for Strategy: The Five Essential Questions at the Heart of any Winning Strategy' (Lafley, Martin & Riel, 2013).
93. This diagram is loosely based on Roger Martin's knowledge funnel, see page 76.
94. This is an excerpt of our blog post 'What do we mean by design?' (Leurs & Roberts, 2017).
95. See Junginger (2013)
96. This is also referred to as 'satisficing' (Simon, 1969/1996), which is a combination of satisfy and suffice. It is a decision making strategy that does not search for the 'optimal' solution, but builds on the assumption that the first option that meets an acceptable threshold, or addresses most needs, is good enough.
97. For a more detailed description of these principles, see the original blog post 'What do we mean by design?' (Leurs & Roberts, 2017).
98. Victor (2011)
99. See our practice guide (Puttick et al., 2014) for a practical introduction on establishing an innovation team or lab.
100. Junginger (2009)
101. This is an excerpt from our blog post 'What do we mean by design?' (Leurs & Roberts, 2017).
102. Sangiorgi (2015)
103. Buchanan (1992)
104. Also see Jay Doblin's (1987) paper 'A short, grandiose theory of design'. In this paper he describes three similar levels of design: products, unisystems (i.e. organisations) and multi-systems (i.e. ecosystems). Each level comes with a higher degree of complexity as the number of parts involved increases.
105. Buchanan (2001)

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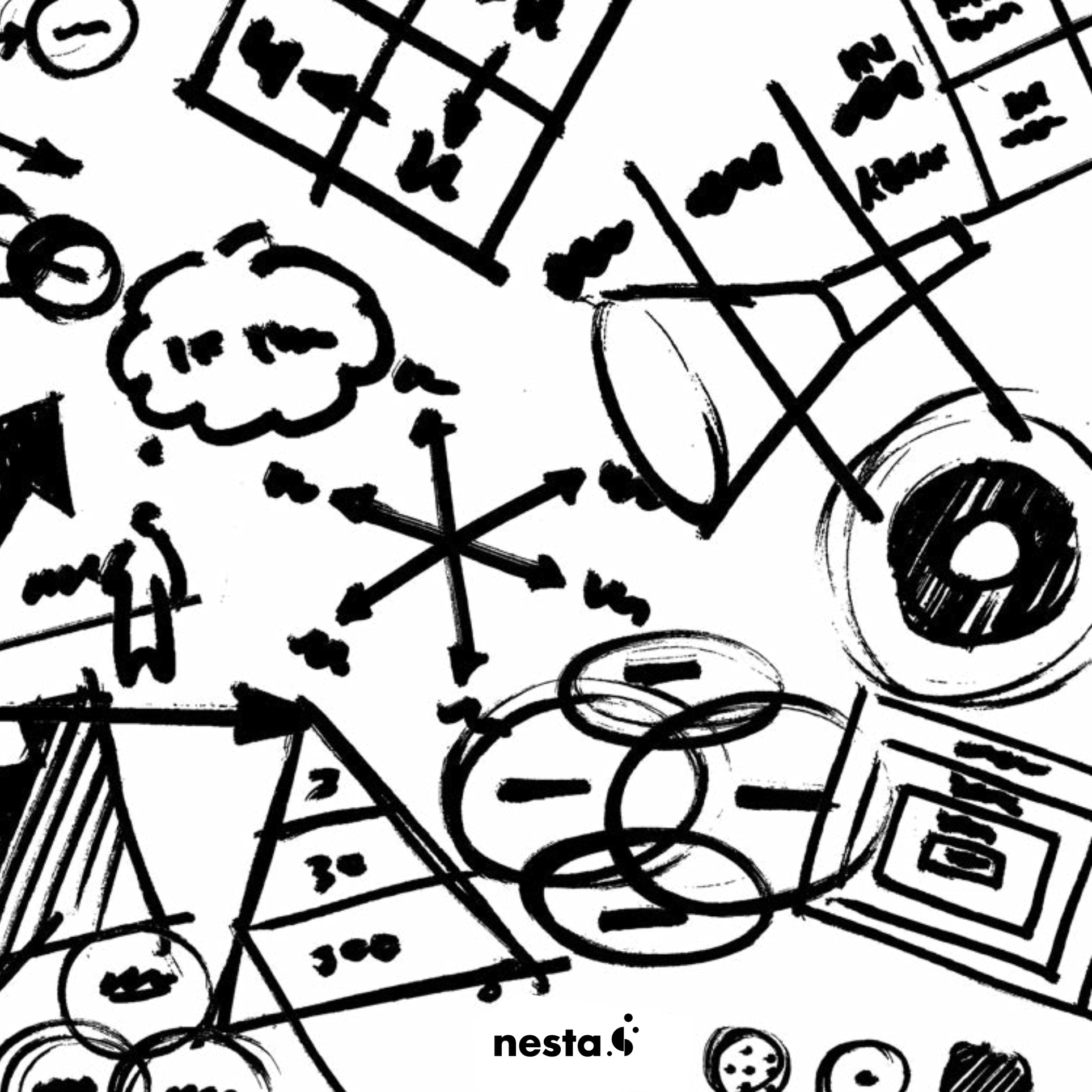
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