DI DesignOps Playbook

How we manage effective design at scale

18 March 2021
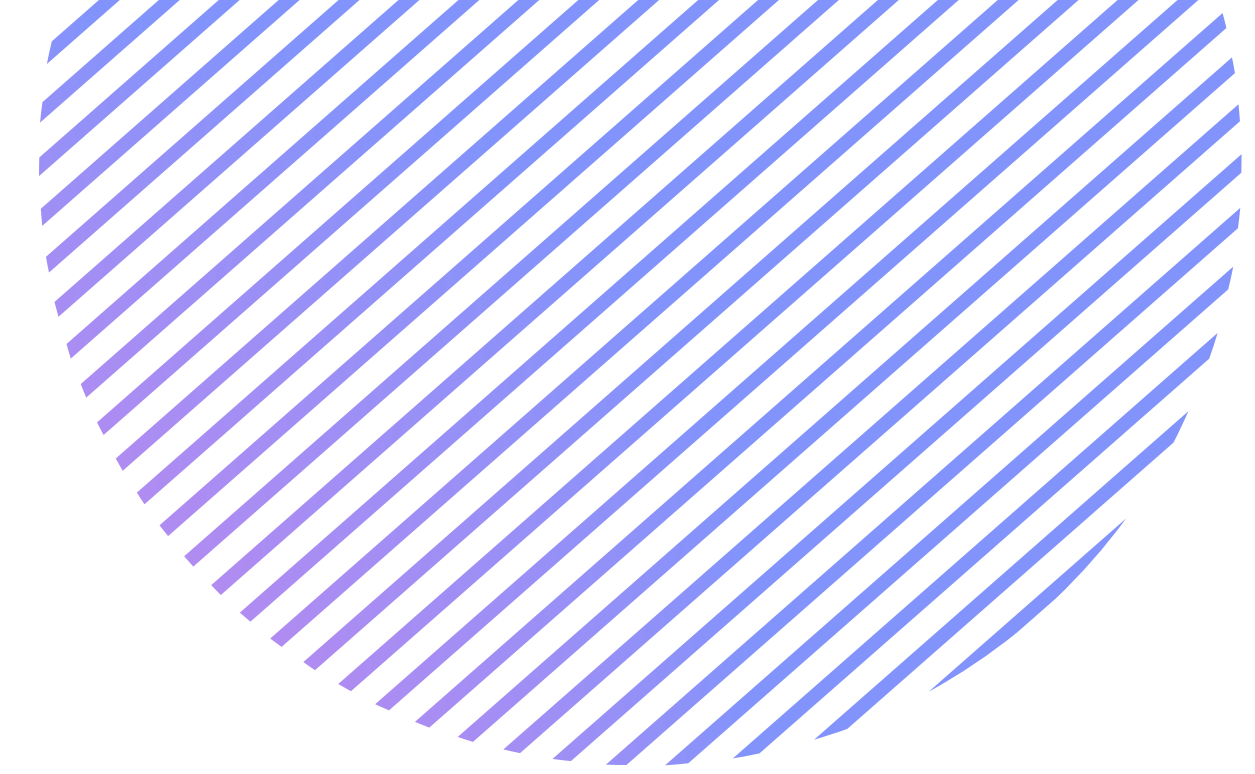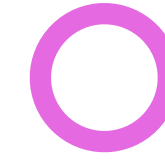
DESIGN INNOVATION
DEFENCE SCIENCE AND TECHNOLOGY AGENCY

Amplify and empower collaboration among cross-functional product teams.

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1
How We Get Work Done

Guiding Design Principles
End-to-End Design Process
Consistent Toolsets
DSTA Design System

2
How We Work Together

Rituals and Meetings
Communities of practices for skills & interest

3
How Our Work Creates Impact

Define Design Standards
Consistent Design Metrics
Definition of 'done'

How we get work done

Faciliating design quality through consistent processes and toolsets.

Sharing and expanding design intelligence so that all work from the same shared understanding and build common ground.

Mission to guide systematic and efficient design practice in DSTA.

9 Guiding Design Principles

Design with Users.

Fully understand all user needs. Embrace the iterative process and continuously improve.

Get the context right.

Context drives usage. But the domain and the context you are designing for might be an unknown unknown.

Be creative, resourceful and relentless in engaging user to identify the knowledge gap.

Design for Operational Simplicity.

Design based on the right insights and the matched user's work model for better usability over perceived simplicity.

Manage expectations to achieve workable outcomes.

Be Collaborative.

Instead of competing, partner to identify the best approach with the greatest impact.

Break silo, make good effort to build rapport with everyone.

Consistently but respectfully nudge boundaries and plug in the gap.

Understand the Existing Ecosystem.

Know what are the 2nd or 3rd degree affiliated systems, how they will impact your designs and how your designs might impact them.

Come up with a strategy for 2-3 steps ahead of the current state of design.

Reuse and improve.

Make use of the design system, reuse the similar functions and improve to make it even better.

Design for Sustainability & Flexibility.

Design for interoperability within your system as well as the other C3 systems.

Design modular systems, not monolithic systems that can be adapted as user needs and context change.

Be Data Driven.

Accelerate impact by incorporating data-driven initiative into designs to predict future trends, optimise current operational efforts and produce actionable insights.

Exploit Commercial.

Stay on top of the commercial world. Keep an outlook of the digital trends. Leverage on commercially available technologies and designs.

9 Guiding Design Principles

Defining processes on how designers work with developers, product managers and users.

Roles and Responsibilities on the Team

Product Owner
Tech Lead
Ops Manager
Scrum Master
UX Architect
UX Designer
Developer

Product Owner

1. Distil & prioritise user requirements to maximise value to users.

2. Maintain a strictly prioritised list of product backlog.

5. Ensure team understands the user stories and goals of each sprint & release.

6. Work with team to break down backlog into sprint logs and tasks with clear definition of done.

7. Track team progress.

8. Manage release schedule, project risks and budget.

Tech Lead

1. Plan & design overall software architecture to meet user requirements.

2. Provide technical coaching & mentorship to team.

3. Review code for complex components.

4. Track tech debt and lead developers to repay debt.

5. Look ahead for relevant technologies to be inserted.

*may need to split into different domains – to be discussed E.g. Tech Lead (Integration), Tech Lead (Backend)

Operation Manager

1. Work closely with Product Owner to manage agendas and users' expectations.

2. Ensure user meetings are set up with the right users for the modules.

3. Point of Contact for team to interface with stakeholders on users' side.

4. Serve as proxy user to team and clarify requirements with users.

Roles and Responsibilities on the Team

Scrum Master

This facilitator role does not generally have any actual authority (also known as servant-leadership) and might be even a secondary role to any team member.

1. Coaches the dev team in executing Agile practices to complete the work the Product Owner prioritises.

2. Responsible for clearing obstacles and improve interactions between the dev team and the organisation in order to maximise the productivity of the Scrum team.

3. Establishing an environment where the team can be effective.
e.g arranges and facilitates the team's meetings – daily Scrum, planning sessions, sprint retrospective, and etc.

UX Architect

1. Drive design innovation, manage and operationalise UX strategy.

2. Translate user research into information architecture and Human-Computer Interaction design.

3. Ensure UX architecture are technically validated with dev team before handover to UX Designer

4. Produce design concepts/ solutions that technically feasible.

5. Conduct scientific experiments - gather, process and analyse data to support design research (e.g eye-tracking)

6. Translator between UX and Development. Collaborate with dev team to resolve technical limitiations while upholding the integrity of UX objectives.

UX Designer

1. Lead and conduct user research to identify new areas of opportunities.

2. Synthesise and communicate research findings to inform and influence business decisions.

3. Story-tell and frame problems for a diverse audience of stakeholders to help them envision the opportunities and achieve buy-in.

4. Responsible for leading the visual design of UX solutions and concepts development.

5. Design and create digital assets for production.

6. Maintain a close communication with developers.

Developers

1. Perform project design and development activities according to specifications.

2. Owns story estimates and implementation of value.

3. Ensure that project is completed within allotted budget and timelines.

4. Be involved with the end-to-end design process and assist in the UX activities.

5. Contributes to backlog refinement and creation of stories.

6. Research and recommend new technologies to carry out project development tasks.

7. Provide assistance to other Developers, perform peer reviews and provide feedback for improvements.

End-to-End
Design Process

End-to-End Design Process

To support rapid development and interoperability of all systems

Systems

Phase 1

Phase 2

Design Innovation

Uncover and address operational needs

Lean UX

Enable greater agility and flexibility, allowing continuous delivery of the software to keep pace with technological / operational change.

Agile Development

Enable greater agility and flexibility, allowing continuous delivery of the software to keep pace with technological / operational change.

DI DesignOps

End-to-End Design Process

Phase 1
Product Definition

Phase 2
Product Delivery

New & Former Ideas
Discovery & Validation Research
Align Strategic Roadmap

Design Innovation

Discover — Define — Develop — Deliver

Prototype Testing

Development Backlog
Lean UX & Agile Development
Post-Release UX Metrics

Kick Off

Understand Problems
Top Problems
Design High level Concepts
Top Solutions

Y
N

Iterative Enhancements

New Ideas

DI DesignOps
End-to-End Design Process

Phase 1
Product Definition

Phase 1

Design Innovation

| New & Former Ideas | Discovery & Validation Research | Align Strategic Roadmap | Discover | Define | Develop | Deliver | Prototype Testing |

Kick Off

Understand Problems · Top Problems · Design High level Concepts · Top Solutions · Y / N

A period of conceptualisation for producing innovation and impactful high-level concepts.
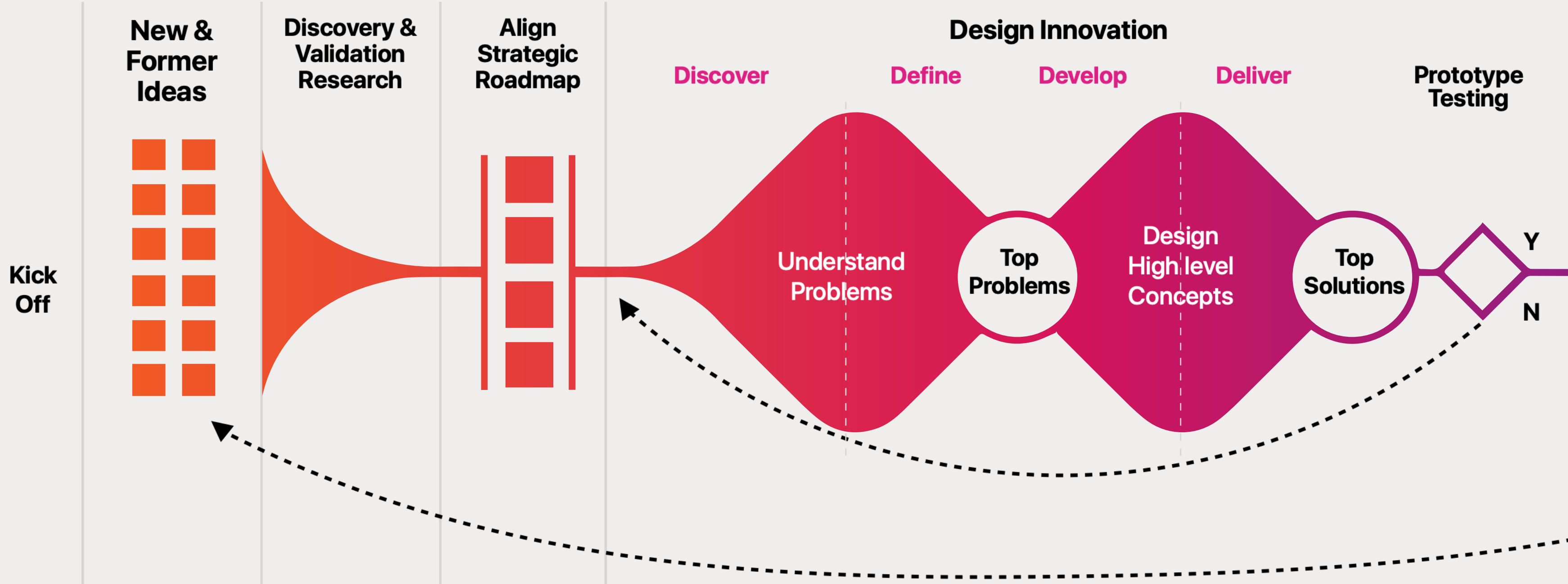
Duration: Approx. 1–3 months
Led by: DI/UX
Stakeholders: Senior Operation Managers, Lead Users, Developers, Product Owner
Deliverables: Concept Overview Deck, Interactive Prototype

End-to-End Design Process

Discover

Identify & understand opportunities & needs collaboratively through co-creation with stakeholders.

Define

Interpret & re-frame needs, map them into activities functions and representations

Develop

Ideate & model concepts based on identified opportunities

Deliver

Iteratively prototype, test concepts & models with stakeholders
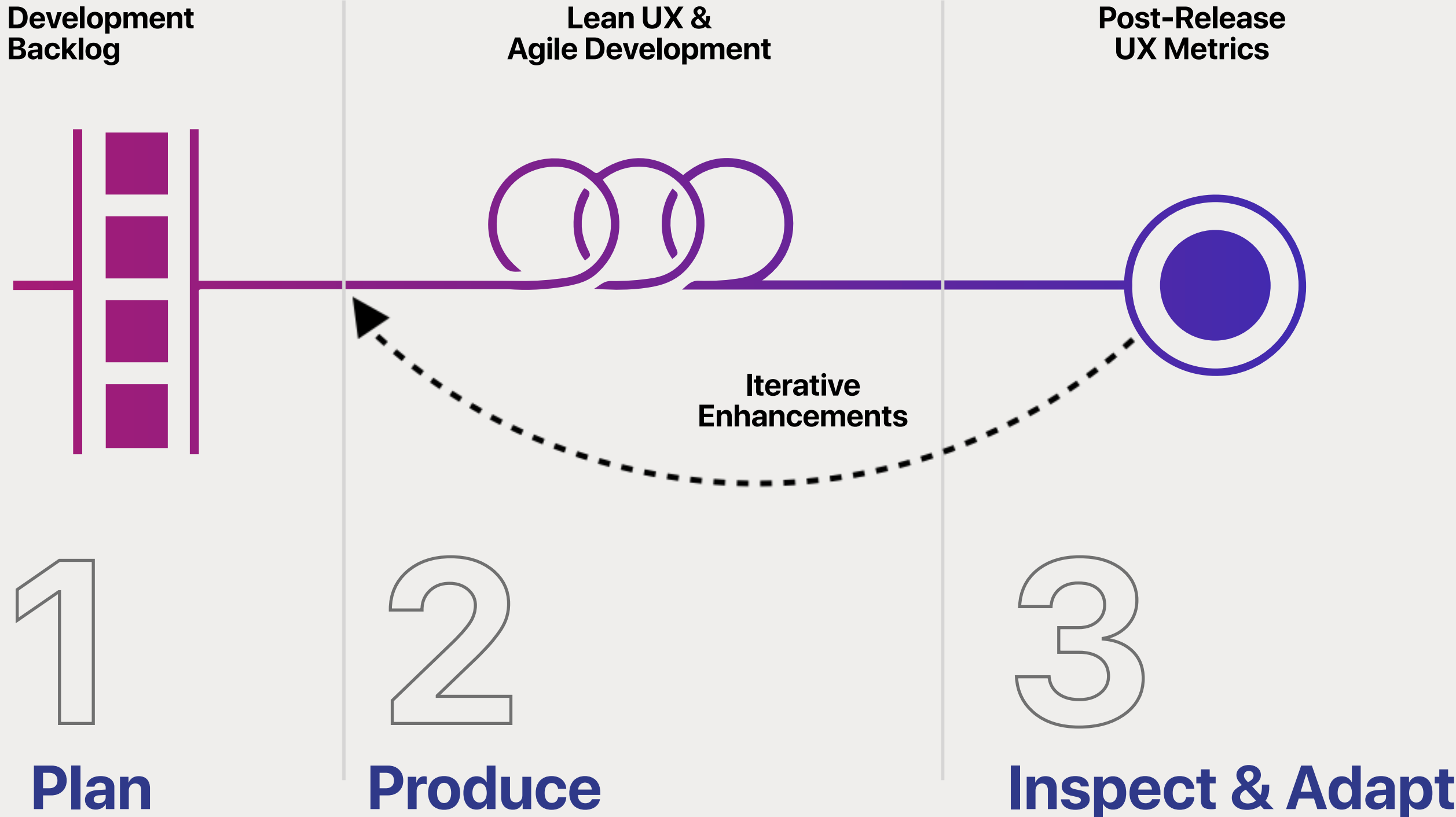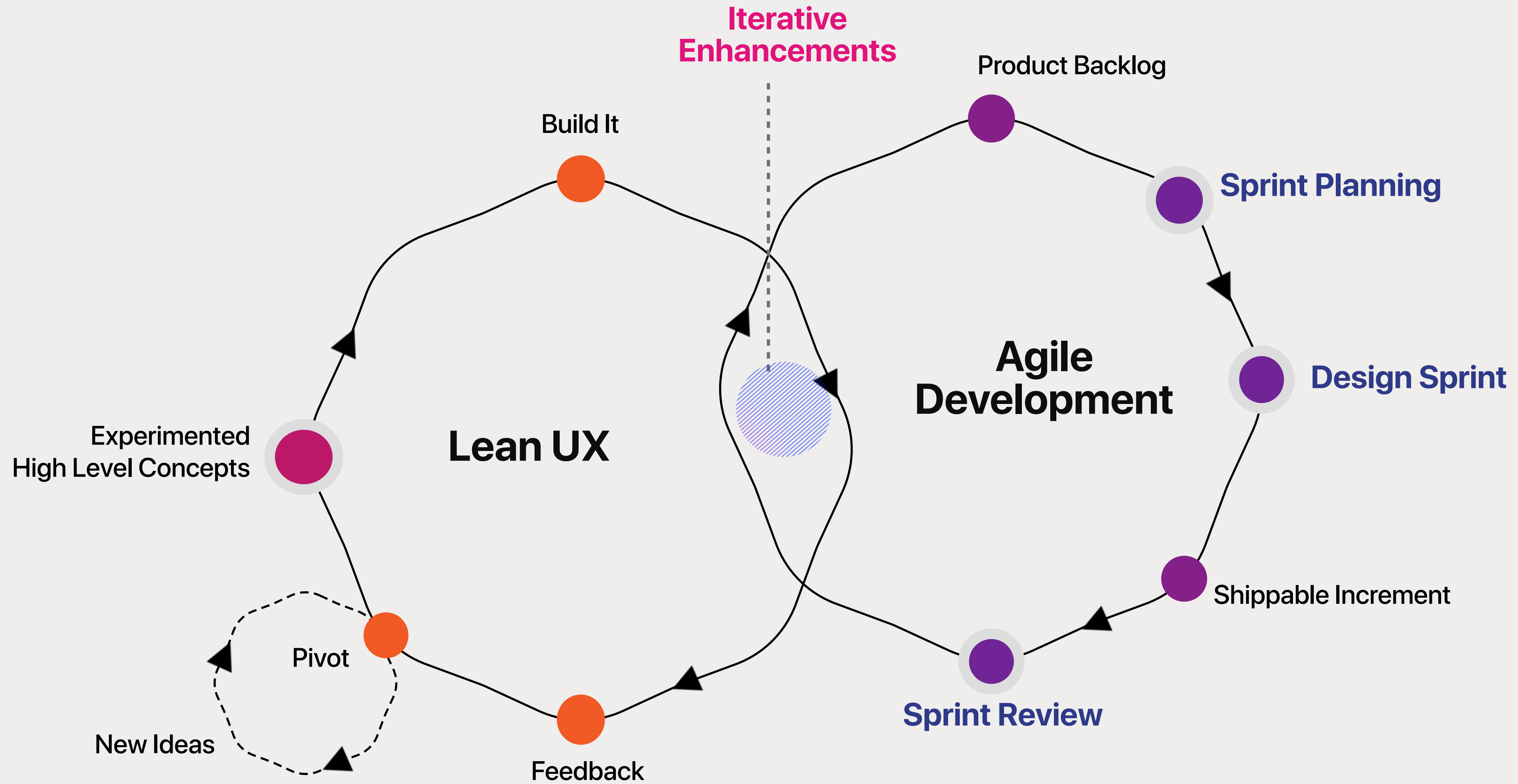
Design Innovation

End-to-End Design Process

Phase 2
Product Delivery

Development Backlog

Lean UX & Agile Development

Post-Release UX Metrics

Iterative Enhancements

1 Plan

2 Produce

3 Inspect & Adapt

Phase 2

User centric approach to defining, building and releasing a continuous flow of valuable products and services to users.

Duration: Depends on Project AOR
Led by: Product Owner
Stakeholders: Senior Operation Managers, Lead Users, Developers, Product Owner
Deliverables: Depends on Project AOR & User Requirements

End-to-End Design Process

Iterative Enhancements

Product Backlog

Build It

Sprint Planning

Agile Development

Design Sprint

Experimented High Level Concepts

Lean UX

Shippable Increment

Pivot

Sprint Review

New Ideas

Feedback

Every team has its own way of working so a one-size-fits-all process isn't practical.

End-to-End Design Process

Sprint Planning

Duration: 0.5 day
Led by: Product Owner

Objective

1. Layout, estimate, and track progress on project
2. Help teams and stakeholders clarify priorities/values, identify knowledge gap and define sprint (Dev & UX) backlog

How to Conduct

1. Product owner and lead users to identify highest priority items with the greatest value
2. UX team and Devs to calculate commitment with their own velocity and capacity
3. UX team and Devs to sign up for backlog items and estimate work owned
4. Review previous backlog items and update status accordingly.
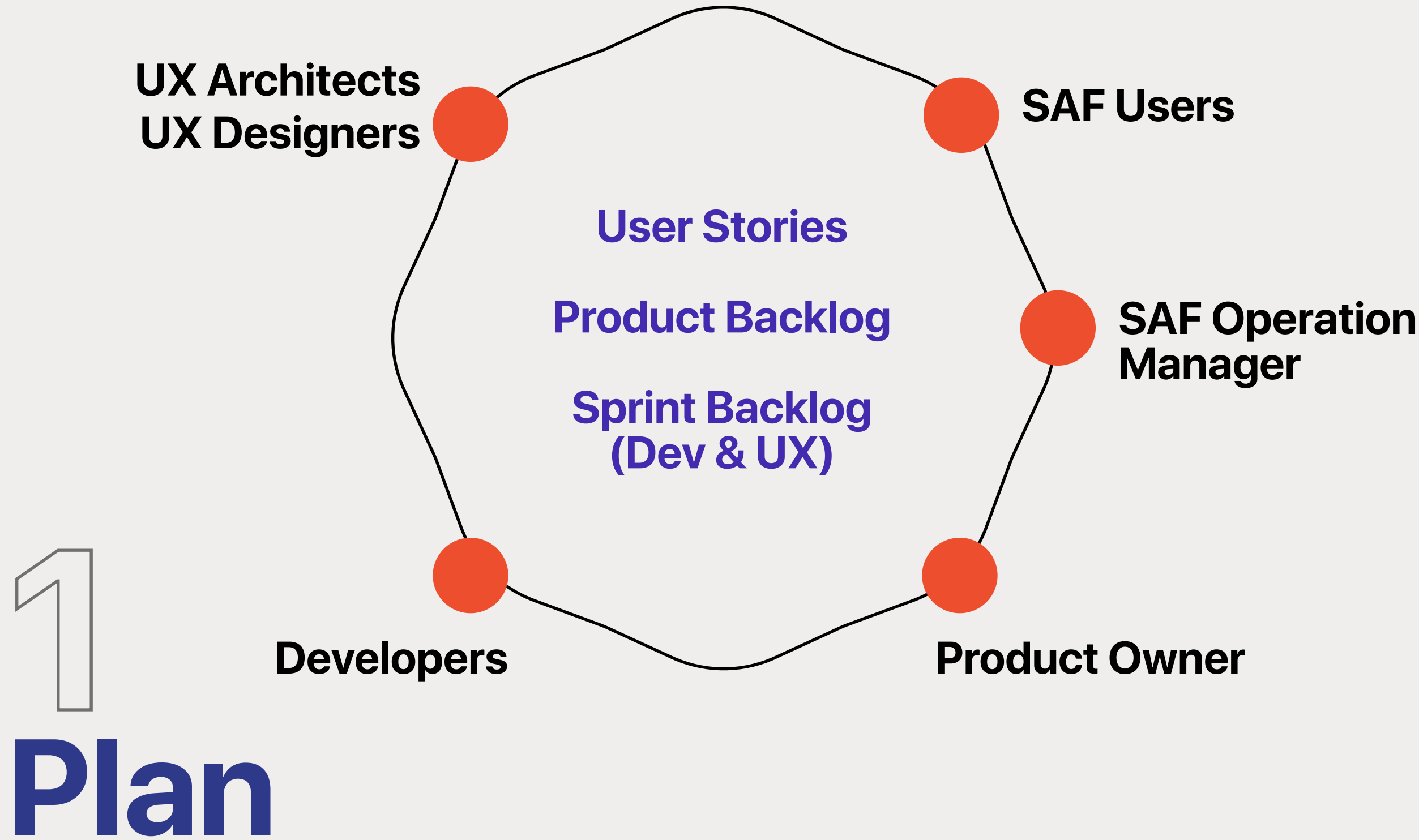5. Minutes to be circulated for accountability.

1

Plan

DI DesignOps

End-to-End Design Process

Planning and prioritising tasks in a project.
All stakeholders should help in grooming of sprint and product back log

Who is typically involved

UX Architects
UX Designers

SAF Users

User Stories

Product Backlog

**Sprint Backlog
(Dev & UX)**

SAF Operation
Manager

Developers

Product Owner

More Roles

Facilitator

Lead the design sprint and ensure the right people are there. He/she is also responsible for keeping the team focused with given agenda.

Minutes Taker

Document everything discussed, with follow-up actions with responsible party if any and ensure that there is a system for labelling and ordering everything.

He/she is also responsible for circulating them to all relevant

1
Plan

End-to-End Design Process

Sprint Planning

Dos

1. Reiterate highest priority items and features.
2. Set a Sprint Goal.
(a short description of what the team will achieve/deliver at the end of the Sprint)
3. Break large items into smaller ones so they can be completed within a Sprint.
   Spread the risk across multiple sprints.
   (i.e. don't add too many high-risk Stories in any one of your Sprints)
4. Revisit and revalidate your DoD (definition of done).
5. Everyone on the team has to agree to complete the items in the Sprint backlog.

Don'ts

1. Ignore team velocity (from previous Sprints).
2. Include backlog items that are too large to complete in a Sprint.
3. Commit to a fuzzy Sprint Backlog.
4. Ignore team capacity. (e.g. vacations, public holidays, etc.)
5. Invite too many external stakeholders in your Sprint Planning Meeting.

Potential challenges

Due to the flexibility and lack of official rules, UX is sometimes left out of the process.

UX design becomes overly reactive to immediate team needs.

Mitigate challenges

Incorporating UX work into agile unified backlog and make UX activities visible.

With explicit UX-specific items included in the unified backlog, UX work can be prioritised and estimated like anything else in the backlog.

Make sure to break user stories into UX and dev subtasks on task lists to accurately represent UX effort in the user-story backlog.

https://www.nngroup.com/articles/ux-agile-backlog/

End-to-End Design Process
Sprint Planning

Potential challenges

When UX effort is less valued with lower buy-in among team members, UX standards are not appropriately represented and put in place

This will result in possibility of development process going off course and poor user experience.

Mitigate challenges

UX Acceptance Criteria on User Stories

While acceptance criteria are traditionally focused on QA (or unit testing) to ensure bug-free implementation, they can and should also include UX measures of success.

Types of UX acceptance criterias

1. Simple as addressing adherence to UI standards.
(such as "all UI elements will adhere to the look, feel, and behavior outlined in the team Front-End Style Guide", or "product will match design mockups within 10 pixels")

Or

2. Consider adding usability-oriented measures such as
"users should encounter no major usability issue while completing task A."
"Task B can be completed by 90% of users tested."
"Has been tested by UX person."

End-to-End Design Process

UX Ahead of Sprint

The effect of 'Sprint Ahead' is an efficient design rhythm when the UX team can constantly feed the Development team clear, actionable designs and requirements to keep the coders coding.

UX must work at least one step ahead of the sprint.

1. UX designers must plan activities before the sprint occurs, which means being proactive and testing assumptions and tackling designs ahead of the rest of the team.

2. They conduct show-and-tell activities ahead of sprints to introduce concepts to users and team members so that, when development is ready to begin, the team has the designs that they need.

3. Product Owner need to do Backlog Ordering in advance and everyone to be clear about what Product Backlog Items are upcoming.

The size and complexity of the project affects how far ahead of development UX designers should work. Most practitioners report designing ahead by 1 to 2 sprints.
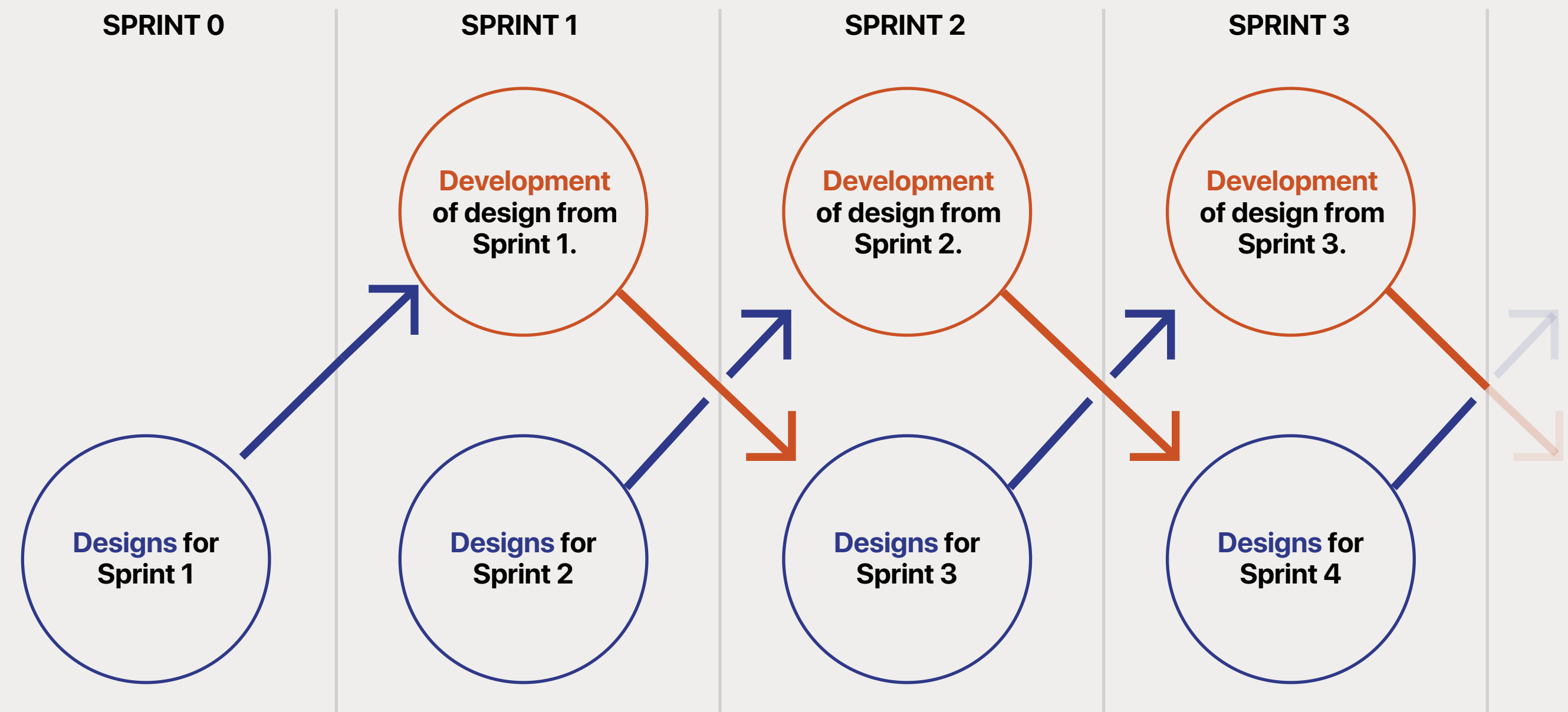
End-to-End Design Process
UX Ahead of Sprint

Sprint Zero: Upfront Research and Concepts for designers

While developers are getting their environments set up, we can start on design tasks. We refer to all of this upfront research and concepts as "Sprint Zero".

All of the necessary tasks that build a framework, such as user personas, user flows, site maps and style guides for an entire project are done during this sprint. Once all of this is established, we can take on tasks and start handing off elements to developers.

SPRINT 0 **SPRINT 1** **SPRINT 2** **SPRINT 3**

Development of design from Sprint 1.
Development of design from Sprint 2.
Development of design from Sprint 3.

Designs for Sprint 1
Designs for Sprint 2
Designs for Sprint 3
Designs for Sprint 4

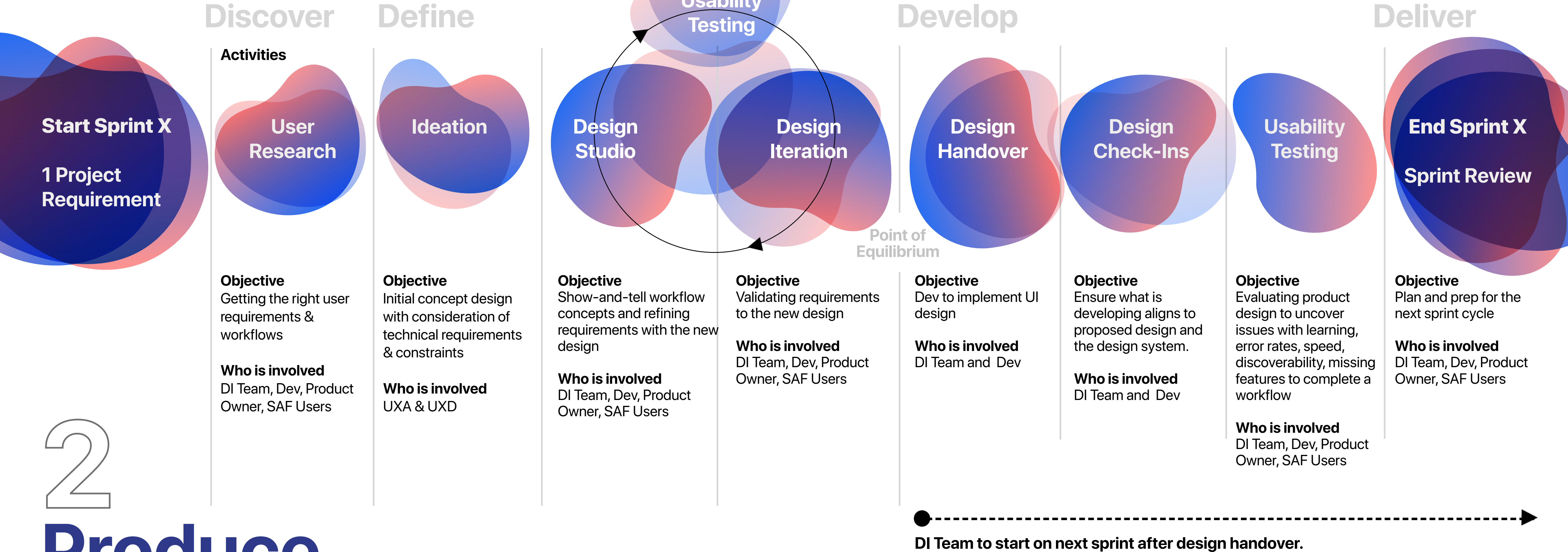**Design Handoff: Completed MMI Designs and Visual Assets**

UX designer does not simply hands off the designs to the developers and moves on. While they should constantly plan ahead, they must also support the current sprint, advise the team, and make adjustments as necessary.

All team members, including project managers, product owners, and engineers, should work closely with the UX designer throughout the process so that when the design is "ready," everyone is in sync. The back- and front-end developers need to understand and support the designs, interactions, and user flows.
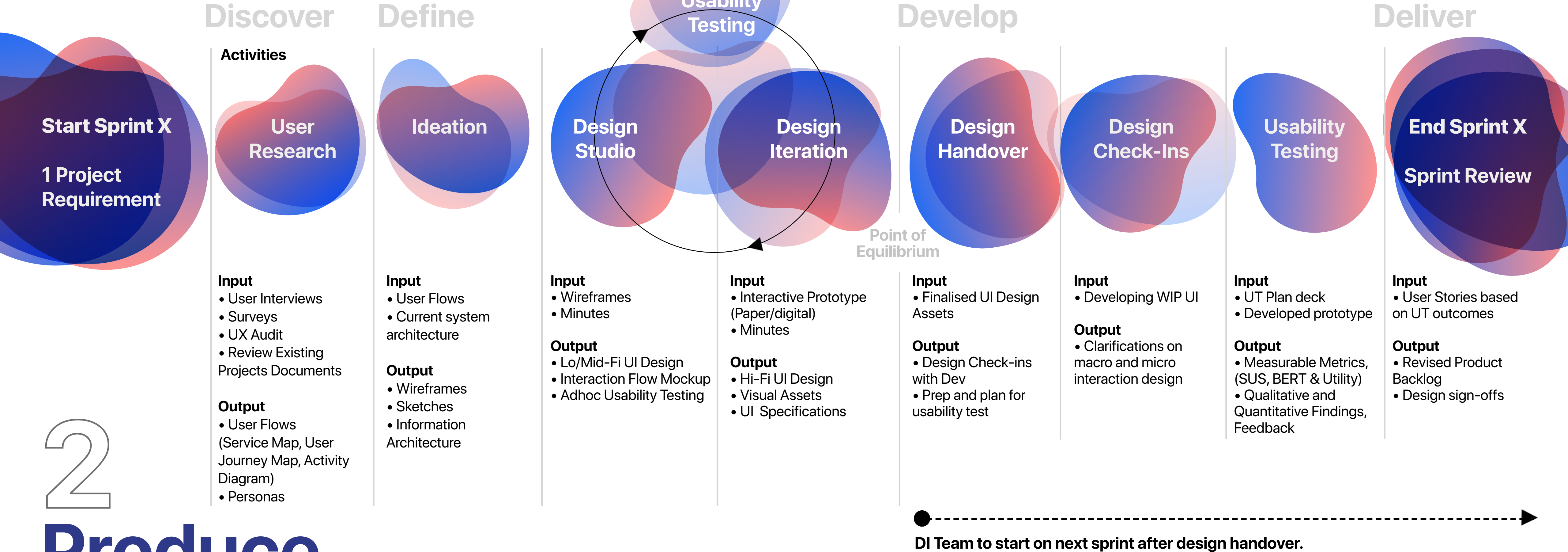
DI DesignOps

End-to-End Design Process

Design Sprint

Discover   **Define**   **Develop**   **Deliver**

Adhoc Usability Testing

Activities

Start Sprint X

1 Project Requirement

User Research

Ideation

Design Studio

Design Iteration

Point of Equilibrium

Design Handover

Design Check-Ins

Usability Testing

End Sprint X

Sprint Review

Objective
Getting the right user requirements & workflows

Who is involved
DI Team, Dev, Product Owner, SAF Users

Objective
Initial concept design with consideration of technical requirements & constraints

Who is involved
UXA & UXD

Objective
Show-and-tell workflow concepts and refining requirements with the new design

Who is involved
DI Team, Dev, Product Owner, SAF Users

Objective
Validating requirements to the new design

Who is involved
DI Team, Dev, Product Owner, SAF Users

Objective
Dev to implement UI design

Who is involved
DI Team and Dev

Objective
Ensure what is developing aligns to proposed design and the design system.

Who is involved
DI Team and Dev

Objective
Evaluating product design to uncover issues with learning, error rates, speed, discoverability, missing features to complete a workflow

Who is involved
DI Team, Dev, Product Owner, SAF Users

Objective
Plan and prep for the next sprint cycle

Who is involved
DI Team, Dev, Product Owner, SAF Users

2
Produce

DI Team to start on next sprint after design handover.

DI DesignOps

End-to-End Design Process

Design Sprint

Discover Define Develop Deliver

Adhoc Usability Testing

Activities

Start Sprint X

1 Project Requirement

User Research

Ideation

Design Studio

Design Iteration

Design Handover

Design Check-Ins

Usability Testing

End Sprint X

Sprint Review

Point of Equilibrium

Input
• User Interviews
• Surveys
• UX Audit
• Review Existing Projects Documents

Output
• User Flows (Service Map, User Journey Map, Activity Diagram)
• Personas

Input
• User Flows
• Current system architecture

Output
• Wireframes
• Sketches
• Information Architecture

Input
• Wireframes
• Minutes

Output
• Lo/Mid-Fi UI Design
• Interaction Flow Mockup
• Adhoc Usability Testing

Input
• Interactive Prototype (Paper/digital)
• Minutes

Output
• Hi-Fi UI Design
• Visual Assets
• UI Specifications

Input
• Finalised UI Design Assets

Output
• Design Check-ins with Dev
• Prep and plan for usability test

Input
• Developing WIP UI

Output
• Clarifications on macro and micro interaction design

Input
• UT Plan deck
• Developed prototype

Output
• Measurable Metrics, (SUS, BERT & Utility)
• Qualitative and Quantitative Findings, Feedback

Input
• User Stories based on UT outcomes

Output
• Revised Product Backlog
• Design sign-offs

2

Produce

DI Team to start on next sprint after design handover.

End-to-End Design Process
Usability Testing

Quantitative VS Qualitative

	Qualitative Data	**Quantitative Data**
Questions answered	Why?	How many and how much?
Goals	Both formative and summative: • Inform design decisions • Identify usability issues and find solutions for them	Mostly summative: • Evaluate the usability of an existing system • Track usability over time • Compare new and old designs • Compute ROI
When it is used	Anytime. During redesign, or when you have a final working product.	When have a working product (Either at the beginning or end of a design cycle)
Outcome	Findings based on the researcher's impressions, interpretations and prior knowledge.	Statistically meaningful results that are likely to be replicated in a different study.
Methodology	• Few participants • Flexible study conditions that can be adjusted according to team's needs. • Think-aloud protocol	• Many participants • Well-defined, strictly controlled study conditions • Usually no think-aloud
Opportunity	• With Actual users during user meetings • With proxy users during Design Studio • A formal, arranged Usability Testing	Pre-Exercise period (User training) & Major Exercise Period

End-to-End Design Process

Usability Testing

Metrics - Usability Evaluation Methods

Attitudinal Metrics
What people say

To understand or measure people's stated beliefs

Surveys
Net Promoter Score (NPS)
System Usability Scale (SUS)
Bipolar Emotion Response Test (BERT)

Behavioral Metrics
What people do

Gathered from usage, as users perform actions on software or websites, and are commonly used in analytics and A/B testing.

Page Views Counts
Users, page views, visits, downloads

User Error Rates
Bounces, conversion, installation

Abandonment Rates

Time-on-task
Time on page, engagement

Task Success Rates

End-to-End Design Process

Sprint Review

Objective

1. Inspect the shippable increment and adapt the Product Backlog if needed to optimise value.
2. Review transparently and determine the status of the work implemented in the sprint.
3. Design Signoff

How to Conduct

1. Product Owner explains what Product Backlog items have been "Done" and what has not been "Done".
2. Dev discusses what went well during the Sprint, what problems it ran into, and how those problems were solved.
3. Design and Dev demonstrates the work that it has "Done" and answers questions about the Increment.
4. Product Owner discusses the Product Backlog as it stands. He or she projects likely target and delivery dates based on progress to date (if needed).
5. Team collaborates on what to do next so that the Sprint Review provides valuable input to subsequent Sprint Planning.
6. Review of the timeline, budget, potential capabilities, and marketplace for the next anticipated releases of functionality or capability of the product.

Duration: 1–2 hrs
Led by: Product Owner
Who is typically involved: Project Team
When: At the end of the Sprint

3
Inspect & Adapt

DI Consistent
Toolsets

Consistent Toolsets

Shared DI tools and platforms for scaling workflows

**Design Innovation Tools
For Experimentation**
Eye-tracker

Digital Collaboration
Mural.co
Slack
Google Jamboard
Miro

Research & Usability Testing
Optimal Workshop
Google Suite

Wireframing
Balsamiq
Powerpoint
Adobe XD

Visual Design
Adobe Creative Suite

Prototype
Adobe XD
Axure (Interactive Prototyping)

Virtual Meetings/Workshops
Skype
Microsoft Teams
Zoom

Manage Progress and Tasks
Trello
Jira

Consistent Toolsets

CARDS LIST

- THE 4D METHODOLOGY

A	User Needs Analysis Methods	UR
B	Contextual Needs Analysis	UR
C	User Interviews (Articulated-use) Method	UR
D	User Journey Map	UR
E	Videography	UR
F	Site Analysis	UR
G	Multi-Sensory Analysis	AN
H	Scenarios	UR
I	Empathic Lead User	UR
J	Semantic Enquiry	UR
K	Personas	UNA
L	Affinity Diagram Method	INT
M	System Model (Functional Model)	MOD
N	Activity Diagram	AN
O	Influence Diagram	UNA
P	House of Quality	AN
Q	Heirachy of Purpose	AN
R	Design by Analogy (WordTree Method)	IDE
S	Mind Mapping	IDE
T	6-3-5 (C-sketch)	IDE
U	Morph Matrix	AN
V	TRIZ	AN
W	Parallel Sketching	CG
X	Co-creation	CG
Y	Product-Service-System Design (PSS)	CG
Z	Pugh Chart	CS
Aa	Real? Win? Worth it?	CS
Ab	Risk Management Process	ASS
Ac	Mockup (Paper prototypes)	PRT
Ad	Scaled Model	PRT
Ae	Isolated Subsystem Model	PRT
Af	Finite Element Modeling Design (FEM)	PRT
Ag	Simplified Prototyping Strategy	PRT

- REFERENCES

DISCOVER

Who are my users?
What are their needs?
What are their reactions?
How do users behave?
How do users feel?
How do they interact with
an object or environment?
How do they feel about
my product?

DEFINE

How do I make sense of
these findings?
Can I define a real person
as my user?
How would my product
fare in different situations?
How did this problem
come about?
Can I define my product
specifications?

DELIVER

How do I reduce the risk
of failure during delivery?
How do I prototype?
How do I test a concept
before the actual run?

DEVELOP

How do I ideate?
How do I think out of the
box?
How do I expand my
current idea?
How do I select the best
concept?
How do I define design
criterias?
How do I give more depth
to my design?

USER RESEARCH
User Journey Map

Discover

A visual interpretation of the overall story
from an individual's perspective of their
relationship with an organization, service,
product or system (PSS), over time and
across channels.[1]

PROCEDURE

1. Goals	2. Collect	3. Identify
Review design Goals for PSS.	relevant user research for insights of user experience.	User touchpoints and channels.
4. Persona	5. Ideate	6. Affinity Diagram
to depict various facets of a user and his or her experience in a given scenario.	with lensed idea-tion to generate concepts.	to visualise ideas..
7. Sketch		
The user journey.		

D

KEY COMPONENTS

Persona   Emotional Response   Context or place

Timeline of scenarios   Touch-points

OTHER COMPONENTS

Positive or wow moments   Supporting Characters

EXAMPLE: USER JOURNEY MAPS

SUTD Design Method Cards

Each card includes a method process, a template and a case study.
The cards provide a discipline agnostic platform for easy access to design methods.

DI DesignOps

Consistent Toolsets

CN Analysis Contextual Needs Journey Mapping	Mission Statement Black Box Activity Diagram Affinity Analysis	C-Sketch Design by Analogy Word Tree Mindmapping	Prototyping User-Validation Scaled Prototypes Iterative Prototypes	**Required**
Likes/Dislikes Multisensory Analysis Articulated Use Surveys	Personas Functional Modeling Workflow Benchmarking	Bio-Inspired Brainstorming Co-Creation Morphological Matrix SCAMPER	Isolated Subsystem Mock-ups Parallel Testing Requirement Relaxation Design of Experiment Testing (Spiral Plan)	**Recommended**
Site Analysis Lead User Scenarios Focus Group Empathic Lead User	Specifications Sheet Want/Needs Requirements Document Background Research	Pugh Chart TRIZ Storyboarding Deep-dives	Paper Prototyping	**Extended**

SUTD Design Method Cards

DESIGN INNOVATION
DEFENCE SCIENCE AND TECHNOLOGY AGENCY

CARDS LIST

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Consistent Toolsets

INSPIRATION SPOTLIGHT

The Loan Surprise Game

There are all kinds of ways that you can learn from the communities you're looking to serve. An IDEO.org team working on designing mobile financial tools to help victims of Typhoon Yolanda in the Philippines devised an ingenious way to understand how people felt about getting loans. They made a board game.

In the Loan Surprise Game, the team set up shop in an area where they knew lots of the people they were designing for would congregate and then laid out a simple dice game where you would "roll" a loan. Once a participant rolled the dice, she was told the terms of the loan and asked if she'd take it.

On the first day they ran it, the goal of the game wasn't to actually design financial products on the spot, but to grasp how members of this community felt about loans and what factors made them willing to take them on. The team learned about how bank loans were perceived as inaccessible to those with little income, but also how getting money from a loan shark was easy, but caused significant anxiety. They also used the game to probe deeper into what kind of financial support people most wanted. By getting participants to change some of the variables, they were able to see what kind of loans were attractive and which sort would never work.

On the second day of the Loan Surprise Game the team actually moved from research to prototyping by adding loan options and qualifications. It was a way to ask more profound questions about how people would actually borrow money, and most importantly, it got people talking. By putting scenarios in front of people and getting their reactions, you quickly engage them in your research and create an opportunity to deeply understand what they want, fear, and need.

https://www.designkit.org

IDEO Design Kit

DI DesignOps

UX Knowledge Base
Making research findings more accessible

1 UX Knowledge Base Workable Deck

This is a living document that UXA and UXD holds in each project.

How to use:
1. Document key summary of project and domain background.

2. Archival of project research and progress for compilation and circulation.

2 Available Tools & Templates to kick start each activity:

How to use:
Extract the individual templates to conduct each activity.

Discover

Project Brief Template
Contextual Inquiry Template
User Sharing Template
Workshop Research Session Guide
User Journey Mapping Template
User Journey Mapping Guide
Storyboarding Template
Service Blueprinting Template
Comparative Analysis Template

Define

Affinity Mapping Template
Personas Template
Card Sorting Template
Feature Prioritisation Template
Flow Chart Template

Design & Develop

DSTA Design System UI Kit
DSTA Design System Style Guide
User Testing for Experimentations
Usability Test Walk-through Template
SUS Score Computation
BERT Results

DI DesignOps

UX Knowledge Base

Making research findings more accessible

3

Research Repository

Single source of truth for each record and update of the UX artefacts.

How to use:
1. Create a research database over a spreadsheet to manage version and ease of searching and updating.

2. It can be included into the UX knowledge base workable deck.

3. Use a series of possible tags – project name, project stage (4Ds), type of artefact (persona/report, etc),

1. Proper Documentation

Systematic guide to achieve findings from user research and documenting design process.

Retrieve user research findings to support design decisions.

2. Common Consensus

Establish alignment between project team and users.

Ensure solution is in line with problem statement established.

3. Sharing Knowledge

Facilitate quicker ramp–ups for anyone who is joining a project at any point of time.

Example of Tags and Groupings for user needs.

DSTA
Design System

DI DesignOps

DSTA Design System
Scaling design in DSTA

1. Pattern & Component Library

A set of pre-built components that can be pulled in to create a design or user interface. Building blocks from which layouts and interfaces are built.

Accordian	Overflow Menu
Breadcrumb	Pagination
Button	Progress Bar
Checkbox	Radio Button
Data Table	Search
Date Picker	Slider
Dropdown	Structured List
File Uploader	Tabs
Form	Tag
Link	Text Input
List	Tile
Modal	Notification

2. Guidelines and Usage Documentation

Standards for how to use the components.

It will help to answer:
When should you use primary button vs secondary vs ghost button?
What grid do you use when?
What should the standard margin/padding be between different kinds of components

Best Practices
Branding
Guidelines
Depth
Design Guidelines
Grid
Iconography
Margin/Padding
Usage
Typography
Usage

3. Design Language

The information architecture and content of the product.

It will help to answer:
What tense should you use?
Should you use professional or technical copy?
What accessibility standards are enforced?

Accessibility
Content Principles
Dictionary
Foundations
Information
Architecture
Taxonomies
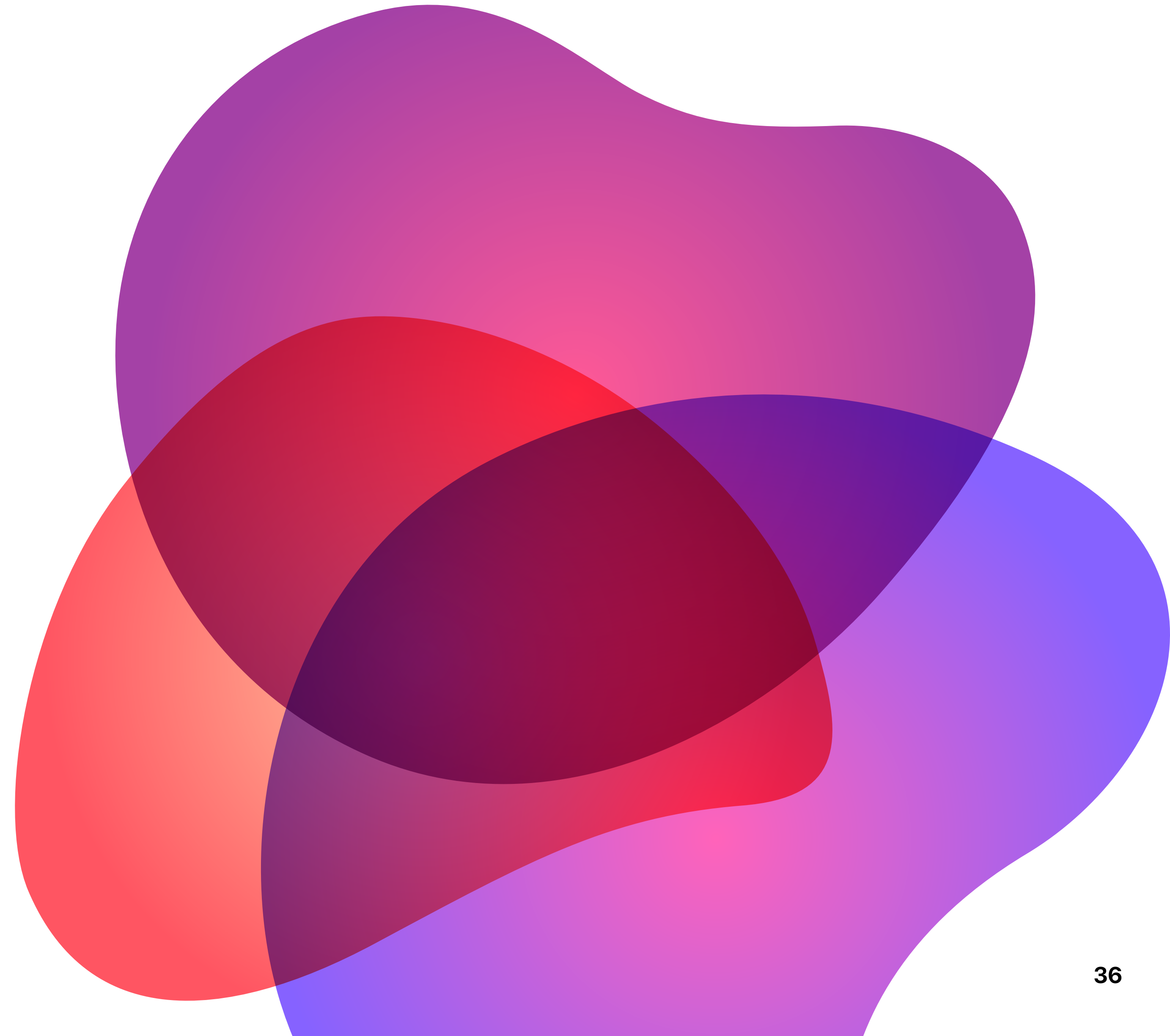Tense
Tone Voice

How we work together

Building and structuring the right team.

Creating environments and gatherings that empower effective collaborations.

Collaborate

For designers embedded on cross-functional teams to talk about projects, share designs with someone outside their usual cohort, and contribute to developing a strong design culture.

DI Ritual and Meetings

Carve out weekly dedicated studio time for designers to catch up with other designers.

1. UXWG

1. Apprise forum of project status or other initiatives
2. Inform and share updates to UX knowledge base
3. Tracking of UX KPI for each project

Frequency: Once a month
Duration: 2-3 hrs
20 mins/ Project Sharing
Led by: Alvin Loh
Secretariats - Chang Yong Chia

2. Leads Huddle

1. Discussion of key challenges and devise action plans.
2. Design direction and strategies
3. Team growth and health

Frequency: Bi-weekly
Duration: 1-2 hrs
Led by: Alvin Loh

3. Stand ups with DI-Domains

Domains - Army, Air & Joint, Navy
1. Individuals to share what was done last week, what will be done this week and challenges faced.
2. Highlight progress and help flag blockers.
3. Uncover common grounds for projects in the same domain.

Frequency: Twice a week
Duration: 10 mins
Led by: Domain Lead UXD & UXA

6. Design Review Sessions

1. Align on the common UI patterns, functions and designs among various projects.
2. Establish design standards.

Frequency: Adhoc
Duration: Half a day
Led by: Linette

5. Design Ops Studio

1. Discuss different design ops topics
2. Understand the differences between each project's current design processes and workflow
3. Uncovering and exposing bottlenecks in the design workflow

Frequency: Once every quarter
Duration: 2-3 hrs
Led by: Ruey Jen

7. Team Retrospective

Evaluate and reflect the current communication and work flow within the team.

Frequency: Twice a year
Duration: Half a day
Led by: Alvin Loh

Building Community of UX Practice for Interest and Skills

DI Engagement Series

1. Fireside Chat

Identify ground challenges faced in
DI application and practices.

2. Workshop

Develop, refresh or level up understanding
of design methods and techniques.

3. Seminar

Promulgate lessons learnt from
DI applications.

4. Community Channels

Clarifications and updates on
all DI matters.

How our works create impact

Making design accountable by defining and measuring design quality.

If designers shield themselves in the cloak of "creatives" as a way not to engage with the business, they will lose impact and credibility.

— Peter Merholz and Kristen Skinner, Org Design for Design Orgs

Fundamental Design Standards

1. Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time.

2. Match between system and the real-world

The design should speak the users' language with words, icons, and concepts familiar to the specific user, rather than internal jargon/ system-oriented terms. Follow real-world conventions, making

3. User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted action without having to go through an extended dialogue. Support undo and redo.

4. Consistency and standards

Users should not have to wonder whether different words, situations or actions mean the same thing. Follow design conventions.

5. Error Prevention

Good error messages are important, but the best designs carefully prevent problems from occurring in the first place.

Either eliminate error-prone conditions, or check for them and present users with a confirmation option before they commit to the action.

6. Recognition rather than recall

Minimise the user's memory load by making elements, actions, and options visible. The user should not have to remember information from one part of the interface to another.

7. Flexibility and efficiency of use

Shortcuts — hidden from novice users — may speed up the interaction for the expert user such that the design can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

8. Aesthetic and minimal design

Interfaces should not contain information which is irrelevant or rarely needed. Every extra unit of information in an interface competes with the relevant units of information and diminishes their relative visibility.

Jakob Nielsen's
10 Heuristics

9. Help users recognize, diagnosis and recover from errors

Error messages should be expressed in plain language (no error codes), precisely indicate the problem, and constructively suggest a solution.
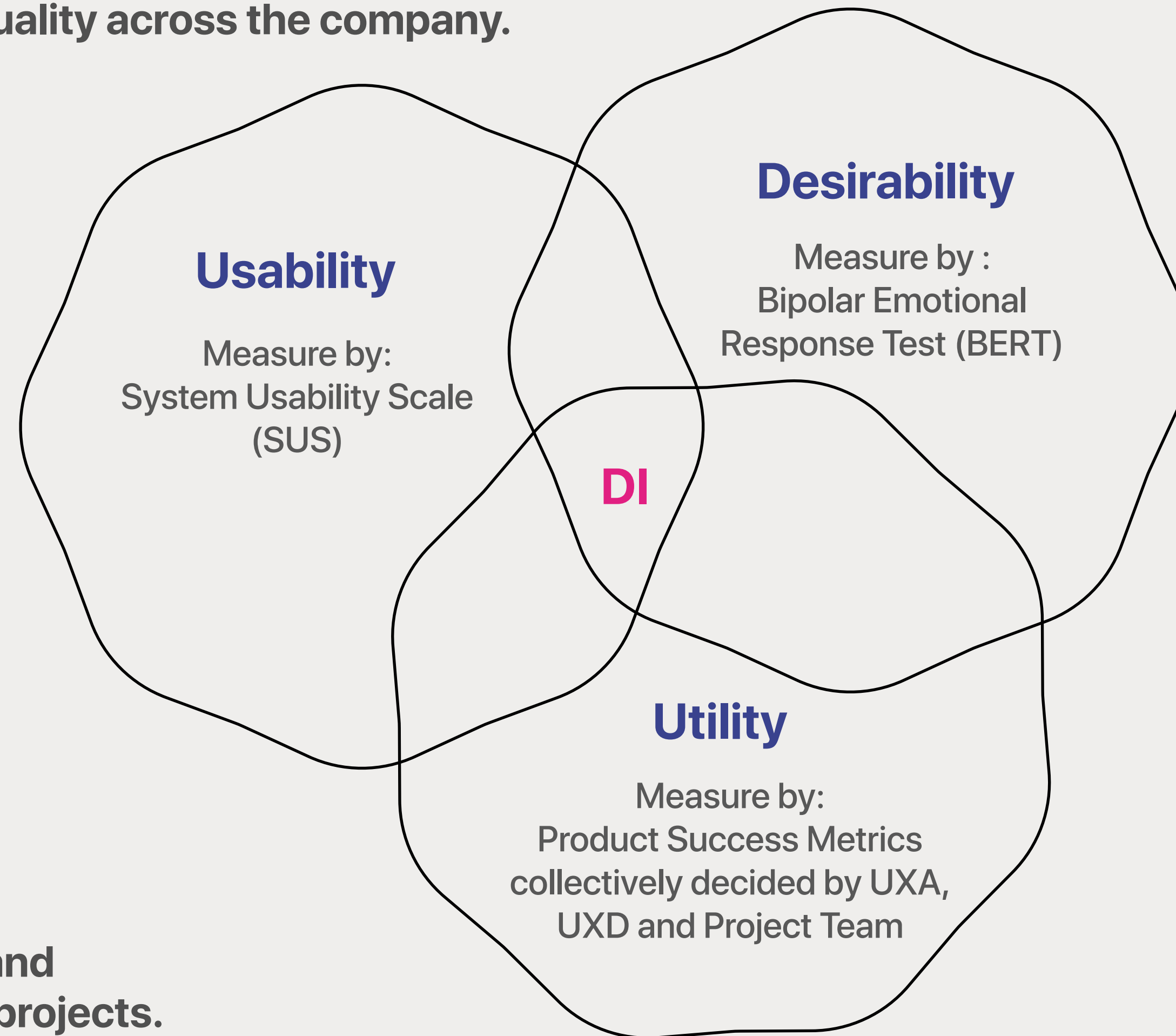
10. Help and documentation

Help and documentation content should be easy to search and focused on the user's task. Keep it concise, and list concrete steps that need to be carried out.

Consistent Design Metrics

Design work is accountable to a set of consistent design metrics to objectively measure design quality across the company.

Usability

Measure by:
System Usability Scale
(SUS)

Desirability

Measure by :
Bipolar Emotional
Response Test (BERT)

DI

Utility

Measure by:
Product Success Metrics
collectively decided by UXA,
UXD and Project Team

(1.e reduction of man-hours,
increased"impact")

Design metrics are captured and tracked over time and across projects.

DESIGN INNOVATION
DEFENCE SCIENCE AND TECHNOLOGY AGENCY

Definition of 'done'

1. Has the design been tested with real users?

Are the functions, features and overall purpose of the product in line with what the users need? Will your users want to use your product over their current way of working?

2. Does the design work properly in the context of use?

Will users use your product in sunlight / when raining / when it's dark? Is the user sitting a quiet office, or a noisy environment, when interacting with your product? Is the user travelling, or is the user always in the same geographical location when using the product?

3. Does the design work with realistic data?

The UI design that you are doing might easily work well with 10 items. But in reality the users are more common to have 1000+ items. Always design for the most common use cases first, then cover edge cases.

4. Does the design work on the intended target resolutions?

Your design will have to consider a range of screen sizes and resolutions depending on your users' contexts - whether desktop, mobile, tablet, or even projected screen is required.

5. Does the design follow DI design principles and design system?

Make sure to follow the DSTA's overall style guide for digital products which outlines aspects such as which fonts and colors to use, as well as overall design principles.

6. Is the design using elements from common UI kit?

Make sure to use the common UI kit, which for instance can contain the style of different UI components (e.g. Buttons, form elements), as well as full screen templates (e.g. login screen, landing page).

7. Is the design coherent with the rest of the other DSTA digital products?

It is much easier for the users to learn using a product when the UI elements look and behave the same way all across the digital products. (ideally across products as well, given that the target users might be the similar).

8. Have edge cases / corner cases been considered?

Ensure to not only cover the "happy path", but also the various cases that can go wrong when interacting with the product. For instance:
• When filling in a web form, what happens if the user tries to navigate away from the web form without saving?
• What happens if the data for each item can't be retrieved from the database?
• When trying to register a new user, what happens if there already is a user with the same user name?

9. Have the "no content" design states been considered?

We tend to design for the common scenario but often forget how the product looks like when starting from zero.
Some examples:
• How does the system look like when you log in for the first time?
• Does the user already have data that will need to be imported from another system? If yes, how can the user import this data?
• How will you "onboard" the user (so that the user quickly can get started using the product)?

Design Checklist

Definition of 'done'

10. Has accessibility criteria been considered?

Understand technical and physical limitations of your users and determine how your designs can empower them. Many accessibility requirements improve usability for everyone, especially in limiting situations.

E.g Sufficient contrast on interfaces in bright or dark room environment or age-related functional limitations,

11. Have you discussed with a developer and confirmed that all the data can be supported in the design?

Work closely with the developer and discuss the technical feasibility of your design.

12. Is the tone of voice in coherent with the design system?

The tone of voice depends on the class of systems e.g. CMS, CCIS, EIT.

Follow accordingly or ensure the writing has reviewed by the design system team.

13. Have you prepared relevant hand-over documentation / assets for the development team?

Mark things such as font sizes, spacing, color hex codes. Ensure to have all image and icons exported. This may also include any proof of concepts done in code (e.g. HTML / CSS / JavaScript).

Design Checklist

Brought to you by

Design Innovation Team

If you have any queries, kindly contact:

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