How To

User Analysis

Digital Agriculture Landscape Assessment Toolkit

JengaLab TechChange DEVELOPMENT GATEWAY An IREX Venture

USER ANALYSIS:
DIGITAL AGRICULTURE LANDSCAPE ASSESSMENT TOOLKIT

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IFAD

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PART 4 : USER PERSONAS, USE CASES, AND USER STORIES

Any approach to digital ecosystem assessments should place a significant emphasis on user-centered design. **Understanding use cases, exploring incentives and the decision space of key stakeholders, and applying user-centered design principles to solutions and recommendations will lead to more effective, equitable, and sustainable data and digital use.**

Section 01: Introduction discusses the importance of grounding digital ecosystem assessments in terms of "use cases" and understanding stakeholders, users, and user personas. This tool examines how user stories and user journeys can help develop user-centered assessment methodologies, report outputs, recommendations, and technical requirements.

HOW MANY TIMES CAN WE SAY *USER* IN A TOOLKIT?!

There are a lot of "user" terms and jargon in digital and data for development that can be very confusing! There are many interpretations and… *use cases*… for each 🙂

For the purposes of this toolkit, we use the following definitions:

- **User Personas (or Users)** – These are generic profiles for a given dataset, technology, or even the audience of an assessment report. Typically, user personas represent groups of people, such as the Ministry of Finance staff, smallholder farmers, education policymakers, and nurses at a state hospital.
- **Use Cases** – These are descriptions of how a given dataset or ecosystem assessment would be used by a given user persona. Data and assessment use cases always follow the same format: as a [user persona], I want to [use the ecosystem assessment OR specific type of data] so that I can [make a specific kind of decision].

- ➔ **User Stories** – These statements, structured much like use cases, describe how independent technology features would meet the needs of or bring value to each user persona. User stories always follow the same format: As a [user persona], I want [a type of feature] so that I can [get specific value].
- ➔ **User Journeys** – These are statements or visualizations that show how user personas make decisions or complete processes using technology or data. Like user stories, they help answer the how, but are not required to follow a set format or structure.

When looking at a data or digital ecosystem, the goal is to:

1) Understand the different kinds of user groups (personas) being targeted,
2) Learn why the user groups interact with data/tech (use cases),
3) Ascertain how certain features within a tool bring value to users (user stories), and
4) Identify the processes required for each decision (user journey).

Term	Focus	What question does it answer about the data or digital ecosystem?	Format
User Persona	Data Technology	Who	Statement
	Ecosystem Assessment		
Use Case	Data Technology Ecosystem Assessment	Why	As a [user persona], I want to [use X dataset OR an assessment report] so that I can [make Y decision]
User Stories	User Data/Technology	How (value)	As a [user persona], I want [X feature] so that I can [get Y value]
User Journeys	User Data/Technology	How (process)	Statement or visual

USER PERSONA: FOCUS ON THE USER

The most important part of assessing an ecosystem or designing software is understanding who is using data or technology, as it helps ensure that the unique needs of as many users as possible are being met. Analyzing **user personas** is a helpful way to organize assessment findings, develop analytical outputs for rapid feedback, and structure impactful findings and recommendations in a report.

WHAT DO WE MEAN BY USER PERSONA?

User personas can refer to one individual (in a very small ecosystem) or a group of individuals that share a common role or function in relation to data or technology. For example, *statisticians* at the Ministry of Agriculture interact with data in a very particular way that is very different from *policymakers*; Similarly, *subnational* agricultural bureaus have different data reporting needs and responsibilities from *federal* or *international* coordination bodies. Therefore, the different user personas at the Ministry of Agriculture could include statisticians, policymakers, subnational staff, and federal/headquarter staff.

Use the knowledge of stakeholders gathered through the desk review, key information interviews, and other co-design processes to develop your understanding of user personas.

User personas are different from *stakeholders.* Stakeholders are all-encompassing and include all those who would benefit or suffer if the data/digital ecosystem project succeeded or failed – even if they are not directly using the technology. An example of a non-user stakeholder is a patient in a hospital where a new medical records system is being implemented. **User personas are usually subsets of stakeholders that are directly using (or hoping to use) the data or digital ecosystem on which the assessment is focused.**

User personas do not need to follow a distinct format or structure, but for an assessment of data and digital ecosystems, **each user persona should include descriptions of**:

- Goals and motivations
- Current pain points
- Main task(s) the user group currently is – or wanting – to achieve

COMMON USER PERSONAS IN DIGITAL ECOSYSTEM ASSESSMENTS

Some common user personas applied in digital agriculture ecosystems assessments include:

- IFAD country office and program staff
- Ministry of Agriculture staff
- Ministry of Finance staff
- Ministry of Communications and Technology staff
- Program/Topic advisors
- Data analysts
- Statistics advisors
- Monitoring and evaluation specialists

- Monitoring and evaluation specialists
- Farmers organizations
- Researchers
- Agro-input dealers associations (e.g., seed and fertilizer networks)
- Development partners
- International financial institutions (e.g., African Development Bank, World Bank)
- UN organizations (e.g., FAO, WFP, UNDP, UNCDF)

User personas can also distinguish between categories of users, such as:

- State/province-level staff versus headquarters/regional staff
- Those who work with technology regularly (analysts) versus those who do not (policy)
- Subject-matter experts versus cross-cutting generalists

VARIABLES OF ANALYSIS

Other distinctions and variables of analysis *(See Section 06: Stakeholder Mapping*) can also be used strategically to tailor recommendations and prioritize user personas:

- **Decision making**: Prioritize user needs in the order of High > Med > Low
- **Technology use**: Prioritize user needs in the order of High > Med > Low
- **One or many portfolios**: Balance priorities between generalists (many portfolios) and subject-matter experts (one portfolio); be aware of differing use cases and requirements

Example: User Personas - DFID User Personas[1]

User Persona	Decision-Making	Data Use	One or Many Portfolios
Organizational Strategist	HIGH	LOW	MANY
Portfolio Strategist	HIGH	LOW	ONE
Program Manager	HIGH	MED	ONE
Country Program Staff	MED	MED	(USUALLY) ONE
Central Program Staff	MED	MED	(USUALLY) ONE
Multilateral Program Staff	MED	MED	(USUALLY) MANY
Analytical Advisors	LOW	HIGH	BOTH
Policy Advisors	LOW	HIGH	BOTH

USE CASES: FOCUS ON PRACTICALITY

TECHNOLOGY USE CASES

In software development, technology use cases tell the story of how a solution should work once complete. Technology use cases are the most common application of the term “use cases.”

The formula for a technology use case is:

As a [user persona], I want to [type of function] so that I can [derive specific value]

One technology use case can have many underlying technical requirements, and one data use case can inform many assessment findings and recommendations (data use cases are defined in the next section).

At the same time, technology use cases are also commonly referred to as ‘user stories.’ To avoid confusion with assessment or data use cases, in this ecosystem assessment methodology **we typically refer to data and assessments in terms of “use cases” and to technology use cases as “user stories”.**

DATA USE CASES

Data use cases describe how a particular data point, source, or piece of information is used to drive decision making.

The formula for a data use case is:

As a [user persona], I want to [use a type of data] so that I can [make some kind of decision]

As you can imagine, there are probably infinite numbers of hypothetical data use cases you could come up with by filling the blanks in the above formula. However, **it is important that the data use cases you develop are explicitly cited by users - either as a decision they would like to make in their role, or one they are actively making in their role**. This direct understanding of the user's perspective will allow you to design solutions that meet these expressed needs.

Another way to think about user needs is to consider what a user "must have" in order to make a decision, versus what they "should have" or "could have" in order to make an even more informed decision. These must/should distinctions are especially useful when you may be unable to implement some or all recommendations needed to realize a use case due to various constraints (read more about constraints and recommendations in Section XX: Recommendations).

Example: Department for International Development (DFID) Data Use Cases[2]

User Persona	Use Case 1		Use Case 2	
As a(n)	I want to... (data)	So that I can... (decision)	I want to... (data)	So that I can... (decision)
Organizational strategist	Compare expenditures with external indicators by country (i.e., gross domestic product, poverty headcount ratio, illiteracy, etc.)	Evaluate the appropriateness of allocation of funds	Review headline indicators across portfolios	Evaluate the strengths and weaknesses of strategy
Portfolio strategist	Review headline indicators across the portfolio	Evaluate the appropriateness of allocation of funds	Compare external partner results and results	Understand comparative advantage and prioritize programming accordingly
Program Manager	View human resources skills and gaps, along with DFID expenditure information	Evaluate program risk	Share data with other DFID teams and external partners	Apply lessons learned and avoid duplication of effort
Country Program Staff	Review disaggregated national statistics	Design around the nuances of a particular country and regions/districts	Gather information on other funder activities at the project level	Coordinate on strategy and implementation
Central Program Staff	View unit costs for delivery options across projects	Assess value for money	Review disaggregated program results alongside contextual information	Customize interventions according to their environment

[2] Source: Developed by Development Gateway in partnership with Department for International Development, 2018

Multilateral Program Staff	Review results data disaggregated by type of intervention	Determine DFID's comparative advantage	Look at progress of other funders, agencies, and countries	Evaluate and review partner performance
Analytical Advisors	Compare results with spending	Calculate value for money	Review standardized data definitions	Compare results and inform decision making
Policy Advisors	Review timely results data in my policy area	Inform long- and short-term strategic planning	Compare spending with external needs by country	Evaluate the appropriateness of allocation of DFID funds

USE CASES FOR A DIGITAL ECOSYSTEM ASSESSMENT

Throughout this guide, the "use case of your assessment" refers to **how the final report (and accompanying analytical outputs) should be used by the target audience of the assessment**: typically your organization, project, partner , or funder (e.g., IFAD). In other words, the use case for the digital ecosystem assessment answers the question: **who is reading this assessment report, and how can they use it?**

Assessment use cases help define the priority audience or reader of the assessment, including the report, the interviews, and the user analyses and mappings. While there is no set formula for this kind of use case, a digital ecosystem assessment should have a clearly defined scope. Use that scope and conversations with stakeholders (especially during kickoff and inception report meetings) to define and refine the use case for the assessment.

For example, assessment use cases should answer:

- How should IFAD incorporate digital agriculture in its upcoming Country Strategic Opportunity Programme (COSOP)?
- How should current or planned IFAD programming utilize digital agriculture to achieve its objectives?
- What digital agriculture solutions are most in demand in [country]?

USER STORIES: FOCUS ON NEEDS OR BENEFIT

User stories describe what high-level features or functionality a system or solution must include to bring some value to a user. User stories are intended to inform technical requirements. However, **user stories are not technical requirements themselves because they do not explain how a feature should be implemented - they simply reveal that a certain high-level functionality is required.** Technical requirements are designed to tell developers what to do; whereas user stories will help the team understand the right questions and remain focused on value, even as they do not hold all the answers.

As with many assessment outputs, the conversations and thought processes behind developing user stories, and the opportunities to solicit and incorporate feedback, are more important than having a laundry list of perfectly defined user stories. For example, consider the following user story:

As a [program analyst], I want to [look at budget spend over time] so that I can [monitor program implementation]

The story simply states that the program analyst needs to look at spend over time (feature)—it does not indicate whether a bar/line graph or table should be used, or at what intervals data should be recorded. In other words, **the assessment team and the assessment audience can define the 'what' through user stories, then a software developer can decide the 'how.'** Therefore, instead of being seen as technical requirements, user stories should be used as "placeholders" for future conversations on more detailed requirements — this is their main value add.

Example

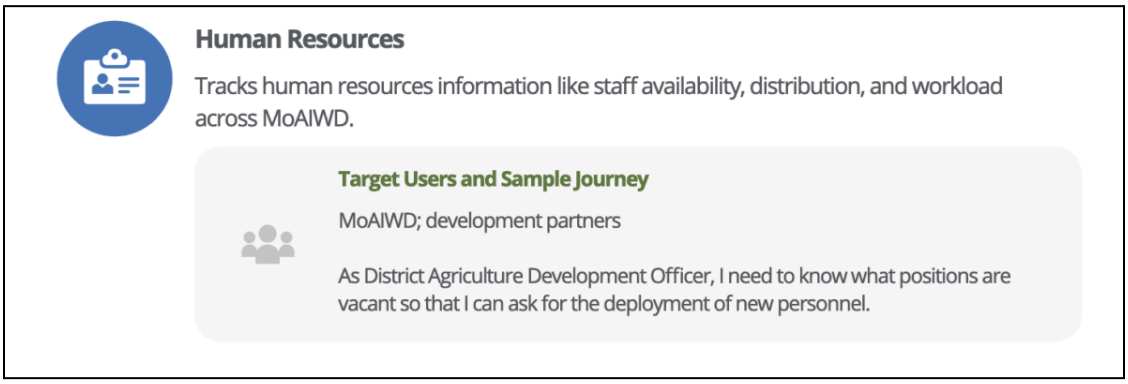
User Stories

Vague User Story	Better User Story	Why this is a better user story
As a [mobile user], I want [to be able to set the application] so that [it only downloads data when I am on Wi-Fi].	As a [mobile user], I want [to restrict downloads using cell data] so that [I do not go over my data plan/bill].	The vague user story has no value statement. Good user stories keep features broad and value statement-specific. This opens opportunities for software developers to be creative – there is more than one way to design features in the

		application to avoid going over a user's cell data plan.
As a [mobile user], I want [to upload my location and make changes to my profile] so that [I can share my location with my friends].	As a [mobile user], I want to [share my location with my friends] so [they can be jealous].	The vague user story is not independent and lists too many features. Good user stories are independent: sharing location with friends is the independent end goal, which may or may not necessitate uploading locations or changing profiles. Value statements also have implications for the user experience and the interface of these features.

USER JOURNEYS: FOCUS ON THE TASK

User journeys differ from user stories as they focus on completing a task (e.g., opening a page on a phone), which is an accomplishment rather than a value. Why do you want to open a page on your phone? Consider the following example:[3]



User journeys describe the series of steps that a given persona takes to complete a specific process or decision using a specific dataset or technology. User journeys are similar to use cases, but focus on the *journey* and *process* rather than the *feature* or the *value*. **User journeys also focus on ensuring that any solution meets those needs**.

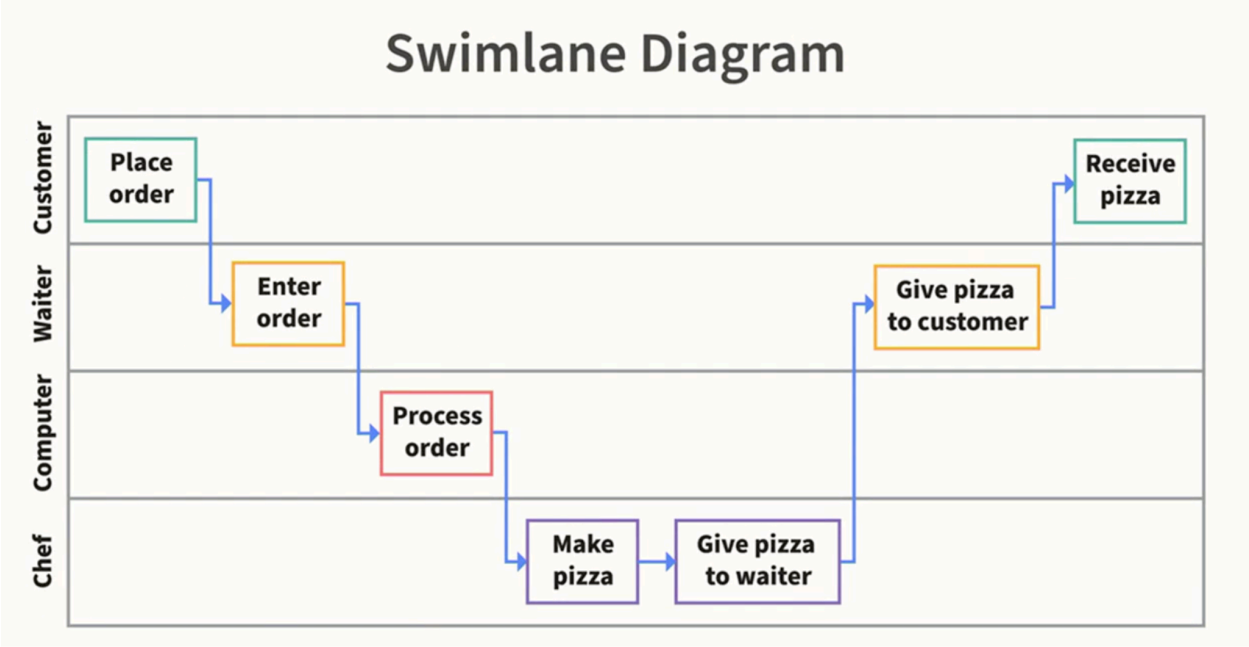
User journeys can therefore be helpful during assessments for understanding:

- When existing data or digital processes should be upheld; or
- When improved processes are well understood and defined
- *In complex data and digital ecosystems where government or organizational processes are difficult to overhaul, a combination of the above scenarios is often true!*

[3]Development Gateway. Conceptual Framework for the Design of the National Agriculture Management Information System (NAMIS). 2019. Pg 34.

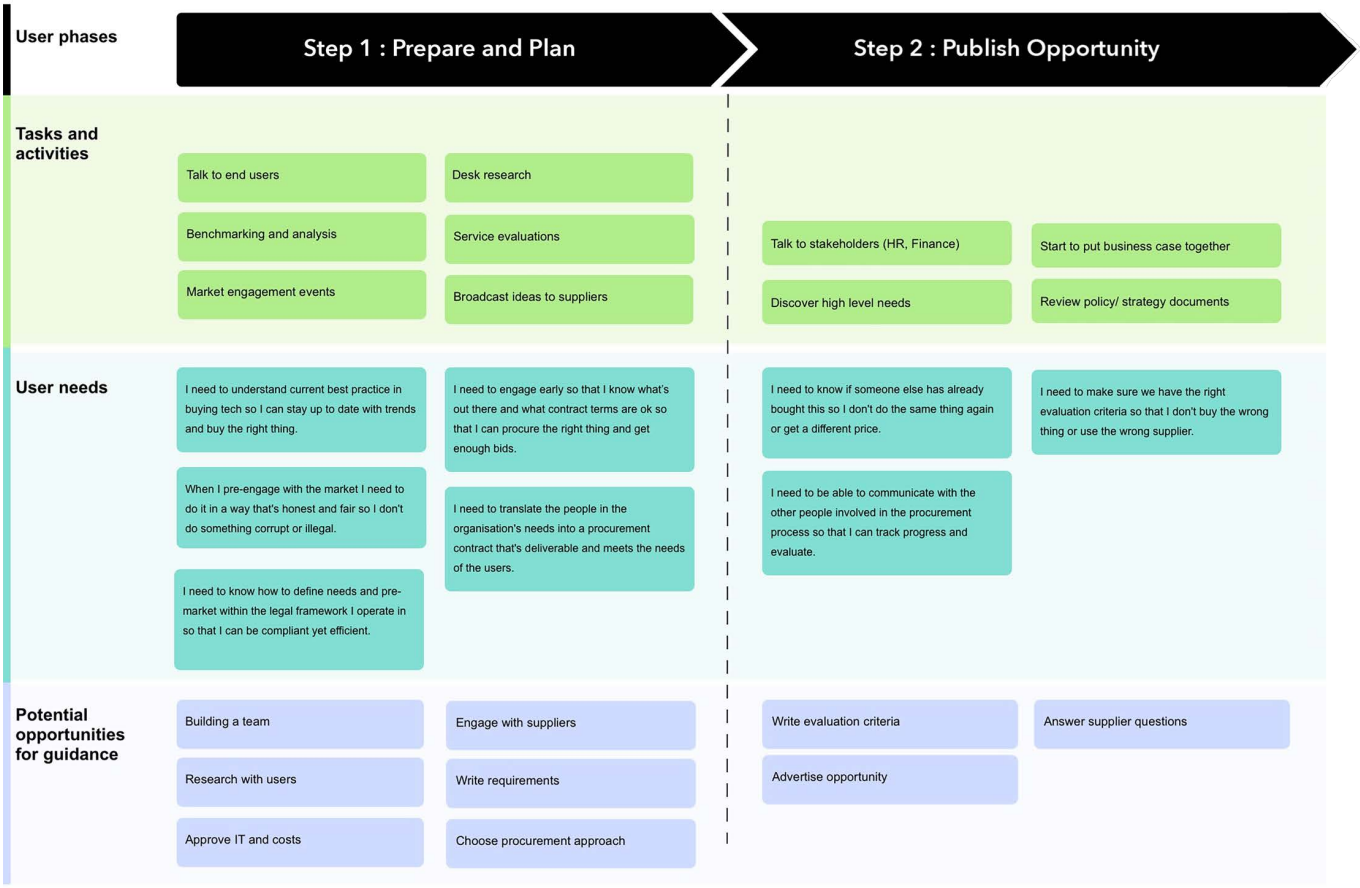
To understand user journeys in complex data and digital ecosystems, it is helpful to identify the phases of data-driven decision making taken by each user profile – the best way to do this is through semi-structured interviews. For more information on how to conduct good interviews to understand these decision-making processes, see Section 03: Interviews and Interview Guides. Once you have gathered information from key informant interviews or other methods, organize it visually or write it out in clear steps so that the process is explicit to the assessment team and the audience.

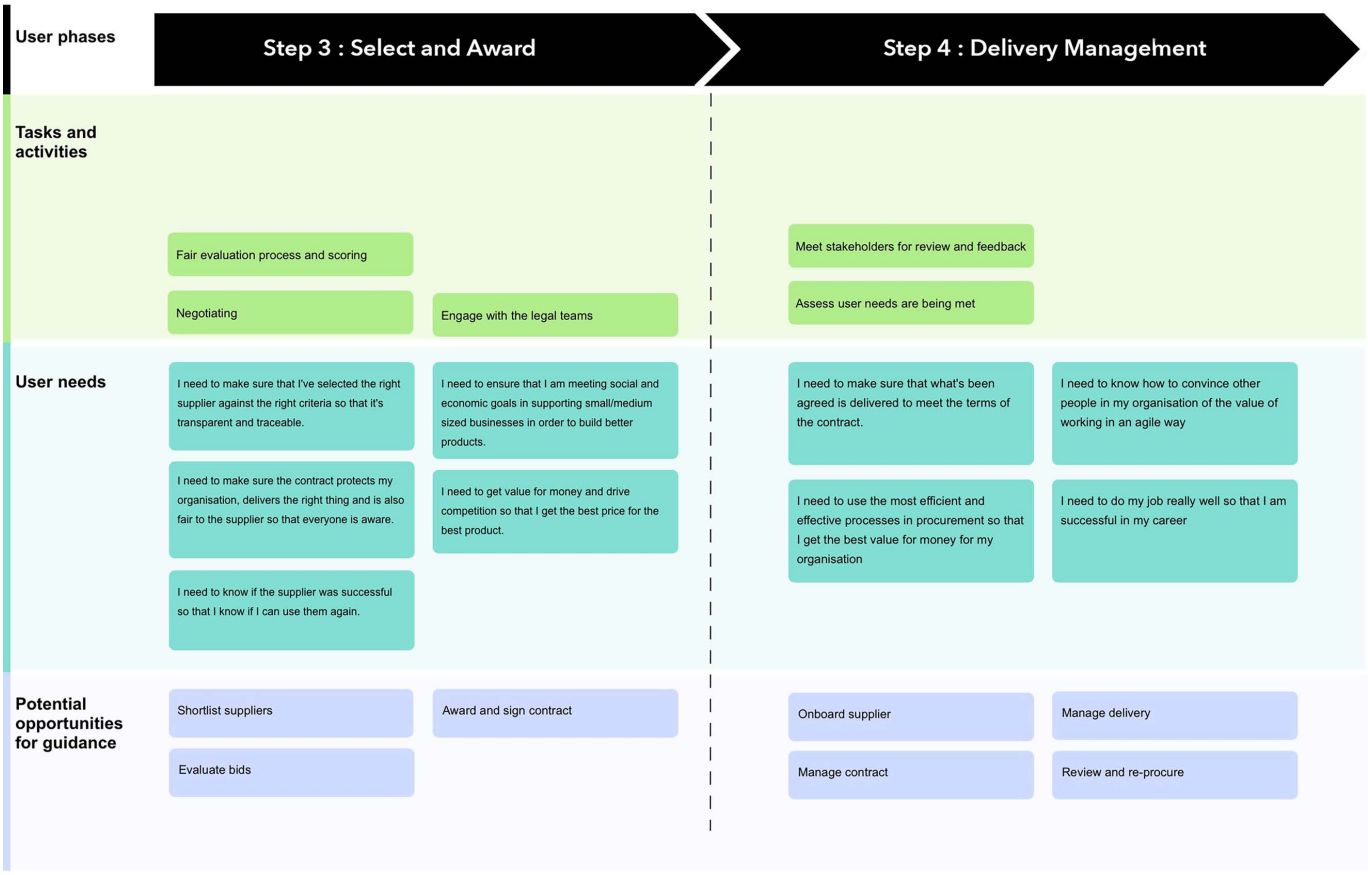
One of the simplest examples of a visual user journey is the Swimlane diagram:[4] The figure below shows the user journey of ordering and making a pizza:



Below is another example of a swimlane-type diagram that outlines the end-to-end procurement user journey using a digital procurement platform, Sistem Tender Online:

Procurement end-to-end journey

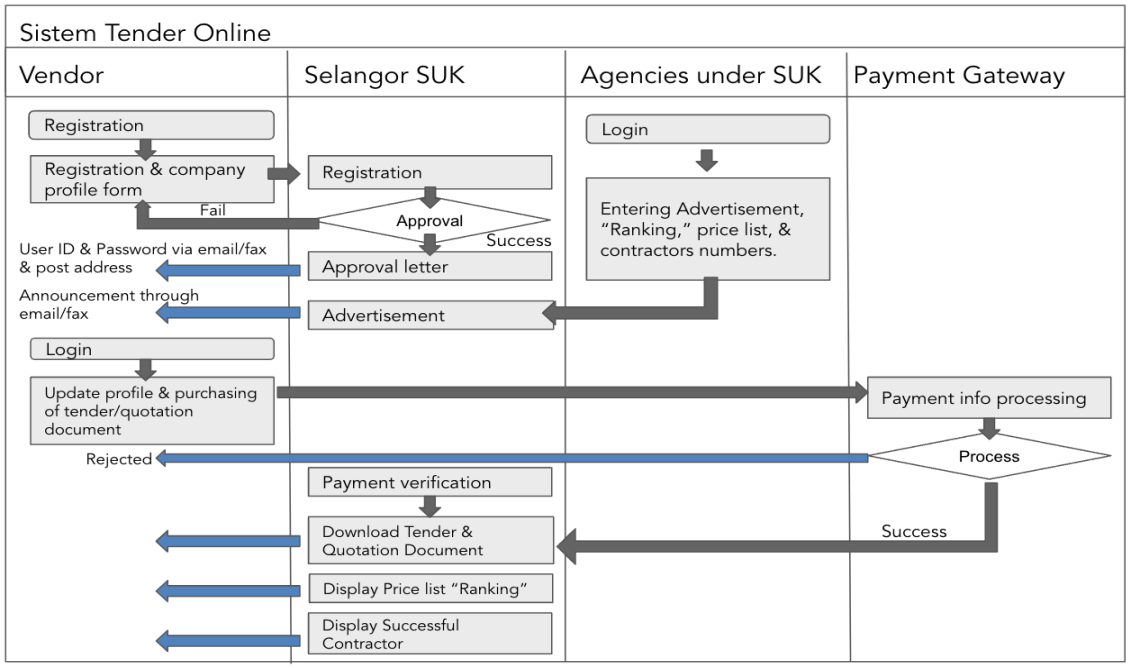




Example

User Journey: End-toEnd Procurement

In subnational state governments in Malaysia, DG worked with partners at the UK Government Digital Services (GDS) team to map out the end-to-end procurement user journey:



User Journey: Subnational Online Procurement Dashboard Sistem Tender Online[5]

This example lists the step-by-step data and decisions that need to be made in order to fully execute procurement, from:

1. Preparation and planning
2. Publishing opportunity
3. Selecting award
4. Delivery management

It outlines:

1. Key tasks and activities
2. User needs
3. Potential opportunities for guidance or improvements

This user journey map was used to design training and capacity building activities that help subnational government bodies make wise investments in e-government and digital solutions. Tasks and activities and user needs were informed by desk review and key informant interviews, and potential opportunities for guidance were developed based on the expertise from the DG/GDS team.

Again, this diagram better illustrates the many avenues and processes that a user could possibly take to navigate through the Sistem Tender Online -- arguably, the diagram gives a much better explanation than a purely verbal conversation. Consider adapting similar user journey maps to convey complex decision processes, options, and avenues.

[5]Source: Developed by Development Gateway in partnership with the UK Government Digital Services and the state governments of Selangor; February 2020.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