Stage	Design Phase	Type	Method	How It Works	What You'll Learn	Pros	Cons
Planning							
	Research	Generative / What, Why, How They Feel	Mental Models	Individuals' motivations, thought processes, decision-making, reasoning, reactions, and guiding principles related to a goal they are trying to accomplish, arranged into various non-chronological "mental spaces." Different behavioral audience segments may join in one mental space or make up unique mental spaces. Align the capabilities of your organization beneath the parts of the mental spaces to see how strongly or weakly you support those areas in question. Demonstrate areas your organization does not need to support.	Individual's motivations, emotions, and stories related to their experience that can be aligned with design and business requirements.	You can see gaps where your organization only provides weak support for certain parts of mental spaces. You can use these gaps as a road map for where to head with your organization's capabilities in a clear-headed way. You can empathize with the people you are trying to support better, because you clearly see what they are trying to accomplish and you can ignore the details of the tools they use. Since the data collation follows a rigid methodology, it becomes more objective than other generative research techniques leading to fewer biases from stakeholders or researchers. You can collect the data from a variety of sources, as long as those sources describe inner thoughts and reasons why a person is doing something toward accomplishing a goal. Can be sketched with a fair degree of reliability within two weeks, with data collected via solicited essays. After five or so participants in a single behavioral audience segment, the findings tend to produce more seldom unique data points. Therefore a fair degree of representation can be achieved with few participants.	Requires more training than many other methods and new practitioners will lead to this being a time consuming method. This may also be highly time consuming if the user segments do not capture behavioral similarity, in which case user goals within segments are highly diverse and more essays and interviews need to be conducted for data points to converge. This method will not give you insight into user acceptance and has a risk of hindsight bias, memory gaps, etc. from hearing the individual's story after the fact without the ability to question details or confirm the stories; however, these biases can be mitigated if the stories are collected soon after the individual's relevant experience.
	Research	Generative / When, Why, and What	Diary Studies	A journal (physical or digital) is provided to the user along with instructions on what types of entries to make or when to make an entry (depending upon the purpose of the study). Data collection can be done as often as daily (digital diary) or as infrequently as monthly and then analyzed for themes and significant events. Can be used to seed mental models.	What the user did, felt, triggered an action, etc. within the time context of the occurrence.	During data collection, the research more or less runs itself. This captures the voice of the user and provides some context and chronology of events. There's flexibility in terms of data collection from traditional journal, blogs, mobile apps to assist with it, even tools that allow users to send a text to log an entry (and send a text to remind them to log the entry). It can also be augmented with pictures, interviews, and screen captures (for recording web properties).	Analysis is often time consuming. This method breaks the user away from what they are doing and makes them very conscious of being part of a study, which may change how they behave (or skew what they choose to record). This type of research often requires over recruiting due to a relatively high abandonment rate.
	Research	Generative / How they do things, When, Why (if it includes interactions with users), What, Who	Ethnographic Research	Long term (from as little as one month--although the short timespan is debatable--to multiple years) observations of users in their native environment. The level of interaction with during an ethnography is partially dependent on what you want to discover and the researcher's epistemological lens. Individuals being observed may not have provided individual consent (unless the ethnographic research is taking place in their home).	User behaviors and (if participatory or including interviews) some motivations and attitudes. This can also help identify major failure points in a product or service depending upon the goals of the research.	Since this is based on observations, data will not be skewed by many common biases (hindsight, social desirability, etc.) or memory (provided the researcher records observations as they happen). Also, since it occurs over a period of time it is likely to capture a wide and accurate range of behaviors. Recent developments in digital ethnography have reduced some of the costs; however, digital ethnography practices may not capture the same rich level of detail. There are a variety of "flavors" of ethnography, which helps make it a robust method.	Highly time consuming and if conducting the shorter period of time this research method is used, the higher likelihood of collecting data skewed by specific events or missing key behaviors. On the flip side, conducting ethnographic research (particularly fully immersed, participatory ethnography) may lead to researcher bias (or "research blindness"--where the researcher is too intimately familiar with the subject matter to notice problems in the service or product to record it). Depending upon how this is conducted, you may only get a snapshot of activity and not see the full picture--although a well-designed ethnographic study shouldn't full prey to this problem (which is more common in a simple observational study)
	Research	Generative / How they view things - others vary depending upon the exact method.	Making Things: Collages, timelines, journey walls, stories about ideal systems, etc.	Partipants are given an activity meant to visually (exception of creative writing activities) display what motivates them, how they view a product or service, what actions they take when, etc.	A visual representation of user attitudes, motivations, and their experience from their own hands.	Since it's visual, it may lead to design inspiration and is often easier for visual learners to process and make sense out the information in order to apply it to a design. It also does a good job of capturing the most important elements to users.	It's often a tunnel view of the overall experience--focusing just on the most salient components or the ones that can easily be visualized.
	Research	Generative / How they do things, Why, What, Who	Contextual Inquiry	This is a semi-structured interview that takes place in the context of the user's home, work, or use of the service. This is intended to help provide the user with memory cues about objects, pages, etc. they use that effect the experience. RePlay and cued memory recall (taking screenshots of their recent activity) are specialized versions of this.	What external resources users typically make use of as well as environmental distractions that need to be kept in mind when designing solutions. By finding out more about the user's context of use, you typically learn more about who the users are and things that get in the way of their goals (or help them realize them).	Can obtain information about the context of usage and identify external resources that can be eliminated/integrated with the product/service. Resource and timeframe is fairly low. One of the best methods for finding out about user's attitudes and opinions about the external resources and their environment.	Since information is collected via an interview, it is often less thorough than other research methods that examine context (ethnography, observation), etc.
	Research	Generative / How they do things, What, Who	Participant Observation	Users who have agreed to participate in the research are observed for a period generally ranging from a half hour to a day as they interact with a product or service.	You learn more about the actions users take, the processes they go through, who they interact with (and how they interact), when those interactions occur, etc.	A fairly quick and low cost method of discovering user behaviors in the context of use.	Since the observation happens over a brief period of time, there's a chance that only a brief set of interactions are observed so only observations of the product or service behaving perfectly (or poorly) and thus miss some key opportunities.
	Research	Generative / How might we envision the future	Brainstorming: Future Headlines, Future Workshop, group sessions, etc.	Each version works slightly different but the general gist of this group of methods is that a group of people (designers, researchers, key stakeholders, users, etc.) get together and discuss some of the current problems and project into the future about potential solutions, some of which may involve emerging technologies (depending upon the scope of the projection--from 6 months out to 5 years out).	New ideas and reasons for or against them. However, this group of methods also helps with issues of teambuilding, empowerment, deomcratization, and can be used as a tool to educate key stakeholders on process involved in design thinking.	Generates an extensive list of ideas with some of the pros and cons about the ideas. Builds some clout with key stakeholders. This can be a good way of combining findings from user research, business requirement, technical constraints, etc. into unified ideas that can be realized in the design process.	Some of the ideas may ultimately be unrealistic and some key stakeholders may become emotionally attached to ideas that are bad experiences.
	Research	Generative / Depends on inputs	Affinity Diagramming	A participatory method where concepts written on cards are sorted into related groups and sub-groups. The original intent of affinity diagramming was to help diagnose complicated problems by organizing qualitative data to reveal themes associated with the problems.	Research findings are organized into groups and prioritizations can be made in terms of what the most significant user problems are right now. This may also help generate ideas on possible solutions to the problems.	Organizes the research findings in a way that involves a wider range of team members, leading to more investment in the findings and helping remove biases that come from interpretation of results by just one individual.	Can be time consuming and due to various levels of experience and understanding of the research findings, may result in concepts being improperly grouped if the sessions are not well moderated.
	Research	Hybrid / What, How others do it	Competitor Analysis	There are various ways of doing this, but the most common are creating inventories of features, services, and unique interaction patterns. Those interested in measuring usability often also perform usability testing on competitors or at least a heuristic review for benchmark purposes.	This provides you with a "bar" that needs to be matched and exceeded to stay ahead of the game. It also provides you with free prototypes that can be used to evaluate features and interactions that are being considered.	It provides an understanding of where major trends are in the industry, how our solutions stack up, and can provide us with free prototypes of solutions we're considering.	Unless limited to top and unique competitors, this can be a major time and resource sink--especially if benchmarks are also involved in this step.
	Research	Hybrid / Who, What, When, Why they feel (Blueprint+)	Service Blueprint / Journey Map	Based on observations of customer's interactions with the business, the end result here is a time-based flow showing the key touchpoints and location in the customer journey.	If done in the most basic form (journey map), this will just give you what happens when in the service model. Going up a level to a service blueprint, this is intended to showcase fail points in the service model and particularly highlight areas where touchpoint redundancies are missing leading to a broken service model.Moving up a layer from that to a Blueprint+, you'll obtain more information about who was involved in the observations and what their emotional reactions were when in the service model (obtainable through interviews and/or galvinic skin response sensors and/or recording faces).	This provides a high-level overview of the entire service ecosystem in a highly visual way that can provide nuanced details. Out of the holistic research techniques, taking this approach leads to the most visual and (arguably) most digestible end product. It also provides a good means to locate prime areas to improve the experience.	Time consuming to create and can be challenging to ensure the entire service and all touchpoints are accurately captured. This method is still relatively new to user experience practitioners and can be difficult to learn.
	Research	Hybrid / What, How Often, Who	Surveys	At this stage, surveys are primarily used to gather information on open questions or to get a wider range of opinions and insights from users than are possible through other methods without requiring significantly more time and travel expense.	Quantifiable answers to specific questions or a wide range of open ended responses that themes can be extracted from.	Can cheaply and quickly obtain a large amount of data from a wide range of users, which can result to answers with high confidence. If there are questions about what is used, how well, how much something is done, etc. that are not answerable via analytics, this is the preferred method to obtain those answers.	A well designed survey question can be challenging and can be time consuming to eliminate bias. In addition, open ended question response rates tend to be worse and may not have enough detail to make it as useful.
	Research	Hybrid / Why, What	Interviews/Focus Groups	A series of pre-defined questions are asked to individuals (interview) or a group (focus group) and frequency of responses can be tabulated although it's more commonly reported in terms of one of one another.	Interviews are with a single individual at a time and can be used to obtain in-depth information about beliefs, motivations, opinions, perceptions, etc. Focus groups obtain the same information but the opinions do not represent the individuals but those of the group as they play off of one another.	If there are complex and specific questions about user attitudes, opinions, etc. this is the best way to obtain that information. It allows follow-up questions that can help get a rich and deep understanding of a problem or concept.	Interviews and focus groups are often improperly conducted with biased questions, focus groups that aren't well moderated or dominated by single voices, etc. With a well trained interviewer/moderator and questions that have undergone thorough review, these problems are minimal.
	Research	Evaluative / What, How Often	Analytics - Current System	Statistics and completion paths are gathered about the current site.	What the most frequently accessed pages are, where people are falling off the conversion/purchase path, find red flags, etc.	This can tell you what some of your biggest problems are (and how big) at a very small cost and in a very short period of time (assuming all of the hooks are built in to collect the data).	Limited range of questions can be answered with analytics and it does little to generate design ideas.
	Research	Evaluative / Who, Why	Personas	Snapshots that represent the users and their motivations and backgrounds.	This is an output of other forms of research that can be referenced during the design process to help ensure features and interactions are useful.	It's a well understood by user experience practitioners and is well established.	There can be confusion with marketing personas, and it's important to focus personas around products to keep them focused--otherwise you run the risk of dilluding the persona.
	Research	Evaluative / What, Why, When	Use Cases, Storyboard, & Scenarios	This should be the output of user research and not conjectur about what users will do. It is ideally tied to personas.	Like personas, this is an output of other research methods intended to be used as a tool to aid the design process.	If thorough, this can capture everything a user would want to do and how they see themselves doing it with a product or service. Any features or pages of the site outside of this area should only be included if there is a business or legal need for it.	This output is only as good as the research input and can be time consuming to exhaustively document. This is sometimes best done in collaboration with business analysts but then there's a risk of misinterpretation.
	Analysis	Evaluative / What, Why, Who	Stakeholder Interview	Key business stakeholders are interviewed to determine priorities as well as features and functions that may be required (for various reasons) when in some cases user research may not show the need.	What major stakeholders are prioritizing, the KPIs, why certain seemingly unimportant items may be critical, etc.	Doing this helps prioritize research, design focus, etc. and can avoid wasting time on unwillable arguments.	If not done carefully or if push-back is not allowed, some requirements may be captured due to false assumptions about the user rather than due to business needs.
Analysis							
	Analysis	Evaluative / How, What	(Cognitive) Mental Models	Built from contextual studies and interviews where the end result is a process map of how the user THINKS a product or service works and what they think they do/the system does. This may be used for gap analysis and is especially useful in fixing common "user" errors.	A visual process chart of the user's mental model of the product or service. This will give you an idea of any gaps between the system design and how users think of it.	Provides a visual representation that can help explain why user's keep running into a common error or have trouble working around a fringe problem. It may not require any additional data collection depending upon what is collected in the planning stage.	It has a limited use case and after a service or product is changed, the model may no longer apply (user's understanding of how it works may have increased--or decreased).
	Analysis	Evaluative / What	Task Analysis	A diagram of activities surround task completion that looks at frequency, duration, complexity, environmental conditions, data and information dependencies/flows, tools, etc.	This is a visual representation of the work users need to do in order to complete a task and can be used to identify areas where steps or external resources can be removed to simplify the process. This can be created for current or planned products/services.	Relatively easy to create and interpret and can be done at various level of detail, breadth, and depth depending upon the projects needs. This is extremely useful in products and services where efficiency is a primary goal of the (re)design.	Limited uses and doing this without observational studies can lead to a poorly informed diagram. This method also looks only at task completion and efficiency, ignoring emotions and other aspects of the experience.
	Analysis	Evaluative / What, Why	Claims Analysis	Positive and negative consequences of design features are evaluated based on what is known about the users and stakeholder's needs.	This can provide an idea of whether or not time spent mocking up the idea is time well spent as well as potentially helping prioritizing how useful the idea will be.	Can save time on the design side by reducing the number of ideas that need to be mocked up if they aren't aligning with either user or stakeholder needs. It may also help refine ideas.	The quality of the assessment is only as good as the data collected about the users and stakeholders.
	Analysis	Evaluative / Who	Function Allocation	Determine what actor (digital artifact, user, employee) will perform what portion of a task and what they need to do.	Who and what the key interaction points are and how much work everything is doing. This can be used to help distribute the workload of a service or product to improve the experience.	Helps find places where new digital tools might reduce the strain on human agents/actors or to find other means of balancing the workload.	It's only useful in cases where some manual work is required (data entry included).

Stage	Design Phase	Type	Method	How It Works	What You'll Learn	Pros	Cons
	Analysis	Evaluative / How will it compare	Benchmarks	Obtain scores on the current system and competitors that can be used to measure success of the (re)design.	The bar that the (re)design needs to meet and ideally succeed.	Doing benchmarks allows UX to prove it's return on investment (ROI) by showing measurable results.	If benchmarks are not exceeded, the ROI for UX is poor. The other negative for this is that it requires extra time that isn't moving toward the (re)design goal.
	Analysis	Evaluative / How much time will it take	KLM & GOMS	Both of these techniques come from cognitive human factors and are very formal although easy to learn methods about the task process.	Assuming ideal conditions and a controlled environment, how long it will take users to complete tasks.	Easy to do and can fairly accurately predict how long it will take users to complete a goal. In time senstive tasks (call centers, emergency response, etc.) this is a critical method. In most external eCommerce environments this method isn't worth the effort.	Time consuming method that ignores the user's environment and emtoions focusing purely on efficiency.
	Analysis	Evaluative / What is the ROI	Kano Model	The requirements are compared to the user perceptions and then categorized into each of five buckets (on a continuum with development): One-Dimensional Attractive Must-Be Indifferent Reverse	Which product attributes are perceived to be important to customers and lead to higher usage and adoption and which features may actually lead to negative adoption and usage patterns by customers. This can then be used to help determine ROI.	It's relatively easy to perform and not very time consuming. It can help provide insight into where the best ROI for new features will be and when some features may be best to avoid.	This can only asses ideas and is not very helpful for finding gaps where a new idea can improve the customer's perceptions. In addition, since it is based off of research participant's projections about the future, this technique is prone to some miscategorization of features.
	Analysis	Hybrid / What, How Often, Who	Surveys	At this stage, surveys are primarily used to gather opinions and assess possible directions to help reduce use of resources.	Quantifiable answers to specific questions or a wide range of open ended responses that themes can be extracted from.	Can cheaply and quickly obtain a large amount of data from a wide range of users, which can result in answers with high confidence. If there are questions about what is used, how much something is done, etc. that are not answerable via analytics, this is the preferred method to obtain those answers.	A well designed survey question can be challenging and can be time consuming to eliminate bias. In addition, open ended question response rates tend to be worse and may not have enough detail to make it as useful. Asking users opinions about what they want without them being able to see options can result in throwing out some good ideas.
	Analysis	Hybrid / Why, What	Interviews/Focus Groups	A series of pre-defined questions are asked to individuals (interview) or a group (focus group) and frequency of responses can be tabulated although it more commonly reported in terms of themes.	Interviews are with a single individual at a time and can be used to obtain in-depth information about beliefs, motivations, opinions, perceptions, etc. Focus groups obtain the same information but the opinions do not represent the individuals but those of the group as they play off of one another.	If there are complex and specific questions about user attitudes, opinions, etc. then this is the best way to obtain that information. It allows follow-up questions that can help get a rich and deep understanding of a problem or concept.	Interviews and focus groups are often improperly conducted with biased questions, focus groups that aren't well moderated or dominated by single voices, etc. With a well trained interviewer/moderator and questions that have undergone thorough review, these problems are minimal. Asking users opinions about what they want without them being able to see options can result in throwing out some good ideas.
	Analysis	Will Users Adopt It	404 Tests	This is a special type of A/B test that introduces the feature as a call to action within the system. The "feature" is rolled out to a limited subset (usually 1% at most) and the percentage of those users who click on it are tracked to gauge potential interst. When users click this, they are taken to a 404 page / feature coming soon page / or a survey for more indepth understanding of the interest.	What percent of your current users are interested in this feature.	Low cost way to gain high-confidence in consumer acceptance and interest in a feature that the user would get to through a call-to-action or site navigation. May also help identify potential barriers to adoption earlier on when they're related to discovery of the new feature.	Creates a negative user experience for those in the experiment.
Design							
	Concepting	Generative / What, Why, How	Participatory Design / Co-Design	Typically done when users are from a special domain that may be difficult for the designers to understand, including them in the design process can help align the design to user's needs.	User priorities and thought processes when they're utilizing a product or service.	It helps ensure the design aligns with user needs.	Eventually the users no longer properly represent their domain as they become overly invested in the design. In addition, the users do not understand a lot of technical and aesthetic elements that can slow the design process as designers explain how it will work to the users without the aid of a prototype.
		Hybrid / What, How Often, Who	Surveys	At this stage, surveys are primarily used to gather opinions and assess possible directions to help reduce use of resources.	Quantifiable answers to specific questions or a wide range of open ended responses that themes can be extracted from.	Can cheaply and quickly obtain a large amount of data from a wide range of users, which can result in answers with high confidence. If there are questions about what is used, how much something is done, etc. that are not answerable via analytics, this is the preferred method to obtain those answers.	A well designed survey question can be challenging and can be time consuming to eliminate bias. In addition, open ended question response rates tend to be worse and may not have enough detail to make it as useful. Asking users opinions about what they want without them being able to see options can result in throwing out some good ideas.
		Hybrid / Why, What	Interviews/Focus Groups	A series of pre-defined questions are asked to individuals (interview) or a group (focus group) and frequency of responses can be tabulated although it more commonly reported in terms of themes.	Interviews are with a single individual at a time and can be used to obtain in-depth information about beliefs, motivations, opinions, perceptions, etc. Focus groups obtain the same information but the opinions do not represent the individuals but those of the group as they play off of one another.	If there are complex and specific questions about user attitudes, opinions, etc. then this is the best way to obtain that information. It allows follow-up questions that can help get a rich and deep understanding of a problem or concept.	Interviews and focus groups are often improperly conducted with biased questions, focus groups that aren't well moderated or dominated by single voices, etc. With a well trained interviewer/moderator and questions that have undergone thorough review, these problems are minimal. Asking users opinions about what they want without them being able to see options can result in throwing out some good ideas.
		Evaluative / How well does it work	Wizard of Oz	A human acts as the computer to simulate interactions of a low fidelity paper prototype in order to obtain feedback from the user about the interaction flow.	Whether or not the design is on the right track overall and a few places where incremental improvements can solve major problems before more significant time is spent in the design process.	It can catch major problems early on and help weed out designs going down a path that goes against user's needs and perceptions.	While this can be time consuming to setup and cleanup and many interactive prototyping tools have produced more efficient pipelines that make this a less useful tool than it once had been.
		Hybrid / How do users mentally link items	Card Sorting & Treejack	Open card sort - all items are given to the users to categorize in groups of their choosing (name and all). Closed card sort - user place all items into pre-defined group. Modified delphi card sort - users build off of one another's card sorts, the first of which is an open sort. Reverse card sort - users locate items that are one or two layers deep in a structure based on a task. Treejack - users are given a task and go down as many layers of the structure as they need to in order to find where they'd go to complete that task.	Aside from reverse card sorts and treejacks, this method tells you how users would organize the information. The reverse card sort and treejack are used to evaluate whether or not the organization created allows users to complete their tasks.	This helps ensure that information is organized in a way that is logical to the users with labels that make sense to them.	While modifications have been made to this method to make it work for a large number of items, this method is often impractictical (due to the amount of time it takes users) when there are more than 100 items.
		Evaluative / What doesn't work	Heuristic Review & Expert Reviews	A user experience researcher goes through the task or site and does an assessment based on either established heuristics or their expert knowledge.	Where there are significant problems with the interface that may not warrant user testing since they are known usability problems.	It is cost effective and not very time consuming.	This doesn't represent the user's perceptions and there is some interpretation required when working with heuristics (it is not wholly objective). In addition, some of the heuristics (depending upon the set selected) may not apply or may not be as important to the particular product or service.
		Evaluative / Where will users be at risk	Physical Ergonomics Analysis	This looks at the physical interactions and assess them based on the amount of strain they put on the user.	Where the user might be placed in undue duress or where items might be placed to make them more efficiently accessed by users to reduce stress.	Helps make kiosk and other physical interactions a better experience.	Finding UX experts who are trained in ergonomics is not as common now as it was a decade ago. This requires specialized knowledge that most HCI and IxD programs do not teach.
		Evaluative / What steps are superfluous	Cognitive Walkthrough	A group of UX experts walkthrough a series of screens in order to assess any areas that are overloaded or require more steps than necessary.	Where the design has superfluous information or steps.	It's low cost and time efficient, normally taking no more than an hour.	It requires several UX experts--ideally three or more researchers and at least two or more UX/interaction designers.
		Evaluative / What does (n't) work, Why (if paired with think aloud or interviews)	Usability Testing	Flavors include: remote (just how it's conducted), summative, think aloud (more of an option to use it or not--task completion times may be negatively skewed if using it), and "standard" (aka formative). This may also include eye tracking or emotional responses (from face recordings and/or galvinic skin response).	In all cases, this is structured research aimed at uncovering problems, their severity, and what users do in the system. This may be task or scenario driven. If this is summative research, the goal is to gain measurable scores (system usability scale [SUS] or System Usability Measure [SUM] are the two most common), frequency of error, and severity. If it is formative, the goal is more to find out where users are having problems and why users are tripping up on those problems (this still results in a severity measure--but it's typically more based on the researcher's interpretation).	Well established method for evaluating interfaces. Many tools and techniques are out there that help reduce the cost of conducting these studies. Helps ensure a wide range of usability problems are caught early to reduce development costs.	Some form of a prototype needs to be created to conduct a usability test. Can be expensive if conducting a lab-based study and the company does not have the facilities for it.
Development							
		Evaluative / How much	A/B & Multivariate Testing	An alternative version of page(s) are released to users and KPIs are collected to determine which design performs better.	What designs are performing well and areas where the design can be tweaked to help improve KPIs.	Low cost and efficient means of measuring performance.	Do not find out why one design is performing better than another and have to be careful about the time frame of the study to ensure the performance isn't just a fluke.
		Evaluative / What does (n't) work, Why (if paired with think aloud or interviews)	Usability Testing	Flavors include: remote (just how it's conducted), summative, think aloud (more of an option to use it or not--task completion times may be negatively skewed if using it), and "standard" (aka formative). This may also include eye tracking or emotional responses (from face recordings and/or galvinic skin response).	In all cases, this is structured research aimed at uncovering problems, their severity, and what users do in the system. This may be task or scenario driven. If this is summative research, the goal is to gain measurable scores (system usability scale [SUS] or System Usability Measure [SUM] are the two most common), frequency of error, and severity. If it is formative, the goal is more to find out where users are having problems and why users are tripping up on those problems (this still results in a severity measure--but it's typically more based on the researcher's interpretation).	Well established method for evaluating interfaces. Many tools and techniques are out there that help reduce the cost of conducting these studies. Helps ensure a wide range of usability problems are caught early to reduce development costs.	Some form of a prototype needs to be created to conduct a usability test. Can be expensive if conducting a lab-based study and the company does not have the facilities for it.
		Evaluative / What, How Often	Analytics	Statistics and completion paths are gathered about the site and tracked as parts of the product or service are released to catch any red flags and measure success.	What the most frequently accessed pages are, where people are falling off the conversion/purchase path, find red flags, etc.	This can tell you what some of your biggest problems are (and how big) at a very small cost and in a very short period of time (assuming all of the hooks are built in to collect the data).	Limited range of questions can be answered with analytics and it does little to generate design ideas.
		Evaluative / How does it compare	Benchmarks comparison	Compare with the results from the new design that's being develped.	Whether or not the design meets the goals.	Doing benchmarks allows UX to prove it's return on investment (ROI) by showing measurable results.	If benchmarks are not exceeded, the ROI for UX is poor. The other negative for this is that it requires extra time that isn't moving toward the (re)design goal.
Testing							
		Evaluative / How much	A/B & Multivariate Testing	An alternative version of page(s) are released to users and KPIs are collected to determine which design performs better.	What designs are performing well and areas where the design can be tweaked to help improve KPIs.	Low cost and efficient means of measuring performance.	Do not find out why one design is performing better than another and have to be careful about the time frame of the study to ensure the performance isn't just a fluke.
		Evaluative / What does (n't) work, Why (if paired with think aloud or interviews)	Usability Testing	Flavors include: remote (just how it's conducted), summative, think aloud (more of an option to use it or not--task completion times may be negatively skewed if using it), and "standard" (aka formative). This may also include eye tracking or emotional responses (from face recordings and/or galvinic skin response).	In all cases, this is structured research aimed at uncovering problems, their severity, and what users do in the system. This may be task or scenario driven. If this is summative research, the goal is to gain measurable scores (system usability scale [SUS] or System Usability Measure [SUM] are the two most common), frequency of error, and severity. If it is formative, the goal is more to find out where users are having problems and why users are tripping up on those problems (this still results in a severity measure--but it's typically more based on the researcher's interpretation).	Well established method for evaluating interfaces. Many tools and techniques are out there that help reduce the cost of conducting these studies. Helps ensure a wide range of usability problems are caught early to reduce development costs.	Some form of a prototype needs to be created to conduct a usability test. Can be expensive if conducting a lab-based study and the company does not have the facilities for it.
		Evaluative / What doesn't work	Heuristics - QA	QA staff is trained in basic heuristics and are given a set of usability requirements to test against.	If any significant usability issues have managed to reach this stage, this is a final gate check to ensure major issues are caught.	Very little additional cost and does not tax the UX group.	QA staff may have difficulty with more ambiguous heuristics.
Release							
		Evaluative / What, How Often	Analytics	Statistics and completion paths are gathered about the current site.	What the most frequently accessed pages are, where people are falling off the conversion/purchase path, find red flags, etc.	This can tell you what some of your biggest problems are (and how big) at a very small cost and in a very short period of time (assuming all of the hooks are built in to collect the data).	Limited range of questions can be answered with analytics and it does little to generate design ideas.
		Evaluative / How does it compare	Benchmarks comparison	Compare the benchmarks with the results from the new design that's being develped. These should be redone at release time to explore effects of development decision.	Whether or not the design meets the goals.	Doing benchmarks allows UX to prove it's return on investment (ROI) by showing measurable results.	If benchmarks are not exceeded, the ROI for UX is poor. The other negative for this is that it requires extra time that isn't moving toward the (re)design goal.

Stage	Design Phase	Type	Method	How It Works	What You'll Learn	Pros	Cons
	Research	Generative / When, Why, and What	Diary Studies	If you choose to do a diary study on release, this can give you additional data about any user acceptance problems that can be mitigated in future releases (or if a limited release was done, the changes can be made before the wider release).	What the user did, felt, triggered an action, etc. within the time context of the occurrence.	During data collection, the research more or less runs itself. This captures the voice of the user and provides some context and chronology of events. There's flexibility in terms of data collection from traditional journal, blogs, mobile apps to assist with it, even tools that allow users to send a text to log an entry (and send a text to remind them to log the entry). It can also be augmented with pictures, interviews, and screen captures (for recording web properties).	Analysis is often time consuming. This method breaks the user away from what they are doing and makes them very conscious of being part of a study, which may change how they behave (or skew what they choose to record). This type of research often requires over recruiting due to a relatively high abandonment rate.
	Research	Generative / How they do things, When, Why (if it includes interactions with users), What, Who	Ethnography	If done at the release stage, ethnographic research can provide you with insight into user behavior as they learn the new system. These insights may lead to new design ideas or adjusted strategies for future changes.	User behaviors and (if participatory or including interviews) some motivations and attitudes. This can also help identify major failure points in a product or service depending upon the goals of the research.	Since this is based on observations, data will not be skewed by many common biases (hindsight, social desirability, etc.) or memory (provided the researcher records observations as they happen). Also, since it occurs over a period of time it is likely to capture a wide and accurate range of behaviors. Recent developments in digital ethnography have reduced some of the costs; however, digital ethnography practices may not capture the same rich level of detail. There are a variety of "flavors" of ethnography, which helps make it a robust method.	Highly time consuming and if conducting the shorter period of time this research method is used, the higher likelihood of collecting data skewed by specific events or missing key behaviors. On the flip side, conducting ethnographic research (particularly fully immersed, participatory ethnography) may lead to researcher bias (or "research blindness"--where the researcher is too intimately familiar with the subject matter to notice problems in the service or product to record it). Depending upon how this is conducted, you may only get a snapshot of activity and not see the full picture--although a well-designed ethnographic study shouldn't fall prey to this problem (which is more common in a simple observational study)
	Research	Generative / How they do things, Why, What, Who	Contextual Inquiry	When done at the release stage, this is intended to find out more about user's reactions to the (re)design, which may lead to new ideas for the next leap forward.	What external resources users typically make use of as well as environmental distractions that need to be kept in mind when designing solutions. By finding out more about the user's context of use, you typically learn more about who the users are and things that get in the way of their goals (or help them realize them).	Can obtain information about the context of usage and identify external resources that can be eliminated/integrated with the product/service. Resource and timeframe is fairly low. One of the best methods for finding out about user's attitudes and opinions about the external resources and their environment.	Since information is collected via an interview, it is often less thorough than other research methods that examine context (ethnography, observation), etc.
	Research	Hybrid / What, How Often, Who	Surveys	At this stage, surveys are typically used as another means of assessing success of the redesign based on KPIs.	Quantifiable answers to specific questions or a wide range of open ended responses that themes can be extracted from.	Can cheaply and quickly obtain a large amount of data from a wide range of users, which can result to answers with high confidence. If there are questions about what is used, how much something is done, etc. that are not answerable via analytics, this is the preferred method to obtain those answers.	A well designed survey question can be challenging and can be time consuming to eliminate bias. In addition, open ended question response rates tend to be worse and may not have enough detail to make it as useful.
	Research	Generative / How they do things, What, Who	Participant Observation	Same as ethnography during the release stage, but for a smaller scale, so you won't get as many insights into how users adapt to the system over time, but you will get their initial behaviors and reactions.	You learn more about the actions users take, the processes they go through, who they interact with (and how they interact), when those interactions occur, etc.	A fairly quick and low cost method of discovering user behaviors in the context of use.	Since the observation happens over a brief period of time, there's a chance that only a brief set of interactions end up only observing the product or service behaving perfectly (or poorly) and thus miss some key opportunities.
	Research	Hybrid / Why, What	Interviews/Focus Groups	At this stage, you obtain more in-depth information about a person related to the (re)designed product or service.	Interviews are with a single individual at a time and can be used to obtain in-depth information about beliefs, motivations, opinions, perceptions, etc. Focus groups obtain the same information but the opinions do not represent the individuals but those of the group as they play off of one another.	If there are complex and specific questions about user attitudes, opinions, etc. then this is the best way to obtain that information. It allows follow-up questions that can help get a rich and deep understanding of a problem or concept.	Interviews and focus groups are often improperly conducted with biased questions, focus groups that aren't well moderated or dominated by single voices, etc. With a well trained interviewer/moderator and questions that have undergone thorough review, these problems are minimal.
Maintenance							
	Research	Evaluative / What, How Often	Analytics	Statistics and completion paths are gathered about the site and tracked as parts of the product or service are released to catch any red flags and measure success.	What the most frequently accessed pages are, where people are falling off the conversion/purchase path, find red flags, etc.	This can tell you what some of your biggest problems are (and how big) at a very small cost and in a very short period of time (assuming all of the hooks are built in to collect the data).	Limited range of questions can be answered with analytics and it does little to generate design ideas.
		Evaluative / How much	A/B & Multivariate Testing	At this stage, this is done for incremental changes during the incremental evolution of the product or service.	What designs are performing well and areas where the design can be tweaked to help improve KPIs.	Low cost and efficient means of measuring performance.	Do not find out why one design is performing better than another and have to be careful about the time frame of the study to ensure the performance isn't just a fluke.
	Analysis	Hybrid / What, How Often, Who	Surveys	At this stage, surveys are primarily used to gather opinions and assess possible directions to help reduce use of resources. It is also used to continue to measure (en masse) opinions of users to ensure they are still on with the current direction.	Quantifiable answers to specific questions or a wide range of open ended responses that themes can be extracted from.	Can cheaply and quickly obtain a large amount of data from a wide range of users, which can result to answers with high confidence. If there are questions about what is used, how much something is done, etc. that are not answerable via analytics, this is the preferred method to obtain those answers.	A well designed survey question can be challenging and can be time consuming to eliminate bias. In addition, open ended question response rates tend to be worse and may not have enough detail to make it as useful. Asking users opinions about what they want without them being able to see options can result in throwing out some good ideas.
	Research	Hybrid / What, How others do it	Competitor Analysis	At this stage, competitor analysis should be updating as competitor's update their own offerings and new competitors join the market.	This provides you with a "bar" that needs to be matched and exceeded to stay ahead of the game. It also provides you with free prototypes that can be used to evaluate features and interactions that are being considered.	It provides an understanding of where major trends are in the industry, how our solutions stack up, and can provide us with free prototypes of solutions we're considering.	Unless limited to top and unique competitors, this can be a major time and resource sink--especially if benchmarks are also involved in this step.
		Evaluative / How does it compare	Benchmarks comparison	Compare the benchmarks with the results from the new design that's being develped. These should be redone at release time to explore effects of development decision.	Whether or not the design meets the goals.	Doing benchmarks allows UX to prove it's return on investment (ROI) by showing measurable results.	If benchmarks are not exceeded, the ROI for UX is poor. The other negative for this is that it requires extra time that isn't moving toward the (re)design goal.

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