Building Tech for Diversity and Inclusion 101

version 0.1

Contributors : Chinmayi S K , Rohini Lakshane, Willow Brugh

Why is this important?

- Technology reflects the biases of society and therefore is not necessarily built after factoring in the realities of diversity and inclusion.
- For eg in the past when offices were air-conditioned, the fact that they were too cold for women was never factored in because the ratio of women in those spaces were too low.
- Similarly since photography was a hobby of the privileged. Photographic plates in the early times were designed for fair people, so dark skinned people ended up getting ghosted out.
- Given the dearth of material which provides a deep understanding of different aspects on how to build a platform which respect the principles of diversity and Inclusion.

What does this say that other things don't say?

- Several people have been working over the years on inclusion in design and testing. Software development involves six basic steps requirements (planning and analysis), design, Implementation, verification and maintenance. For a software (in this case a web platform or a mobile platform) to be respecting and welcoming of all its users it is necessary for all these steps to include certain practices. This manual lists out of some of the practices with examples making it easy for a technology team to follow.

What should the reader expect to find in this?

- A set of guidelines to build technology platforms which are friends to a diverse set of audience or set of users. This manual is for some one who has not practised or worked with or had a formal education on diversity and inclusion. It has a set of lessons from various practitioners from around the world and some shared lessons.

What will they be able to do if they follow it?

- The manual will be able to help anyone to build a web / mobile platform which is more diversity and inclusion friendly
- It provides an understanding for some one funding a technology project in a rights organization on what it takes to promote technology use in their grantees work
- For an organisation planning a technology project this provides some curated knowledge to grow from.

What does it mean to build technology for diversity and inclusion ?

- Build technology which works for
- 1. All Genders
- 2. Varied linguistic groups
- 3. Different cultural groups

- 4. People with Disabilities

Chapter 1 : Design

- **Design Processes**

  * Ideation /Prototyping

    The ideation stage of any technology is an important part in building technology for rights. It is the crucial part of the product formation. Usually in most organisations the requirements is collected separately by an organisation and then passed on to the technology team for building. This results in huge gap in how the product is built and whom the product is built for. To make a platform more diversity friendly and inclusive, it is always recommended to involve the multidisciplinary team working on the issue. While involving people you want to use the platform in the design process sometimes makes it usable esp when building for a diverse audience Practitioners over the years have identified the following processes as effective processes to design for social innovation

    1. **Collaborative Design** - is used to refer to the use of multi-disciplinary design teams in the design process. This process does not mandate use of community
    2. **Participatory Design** - Is a process which brings together community and teams to make collective decisions about a platform which does not limit to design decisions
    3. **Co-Design** (http://www.codesigntoolkit.com/) - Is a process which brings together a diverse community to work on the design on a system. This is done iteratively by creating smaller modules and prototyping it.

  * Usability Testing

    Irrespective of the design process used . It needs to be tested beyond the people in the room who were involved in designing it. Usability testing usually determines which features stay and which need modification. Usually Usability experts conduct these tests with a test group matching the target groups of the platform. A product built for diversity needs some additional work at this phase.

    It is important to Invite diverse group of testers to a Usability test . This can be done two ways depending on your needs :

    The test audience must be chosen such that there is a diversity ratio for hiring Certain practitioners advice on not aggregating the audience and conducting separate tests for marginalized groups and mainstream groups.

Finding Diverse Audience :

Agencies hiring testers for this process usually have a database of diverse group of people . But in the lack of which It would also be helpful to tie up with communities and organisations working with marginalised population. They are usually very supportive of efforts of inclusion.

Eg : When we built a talking keyboard (a keyboard which spells what you type) one of the use cases was to use for training to use computers for visually impaired. We initially worked in a collaborative design format to create the prototype. Then tied up with a organisation to do the tests on prototyping which helped us understand what we usually ignore like time gaps in spelling out.

Making a public alpha of a prototype is also another model to attract a diverse set of people to use your platform. This might not be useful for all platforms but can do wonders when you a small team.

Design Decisions

Structure and Components

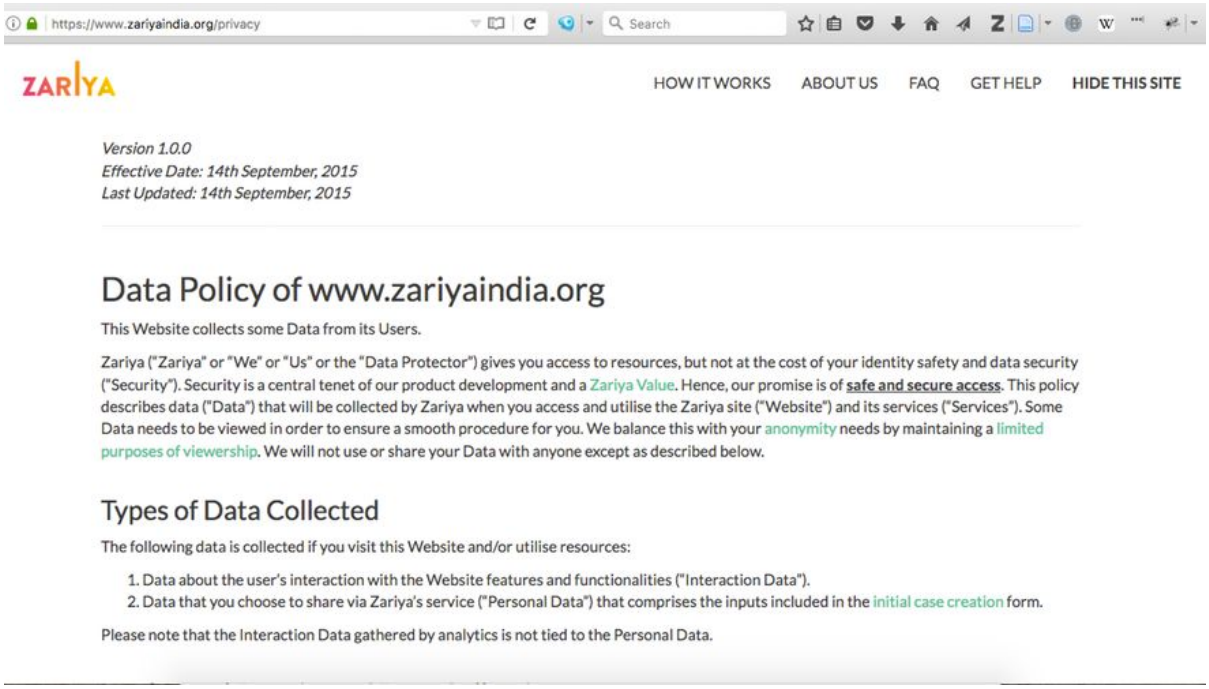
Platform elements - Good Practices

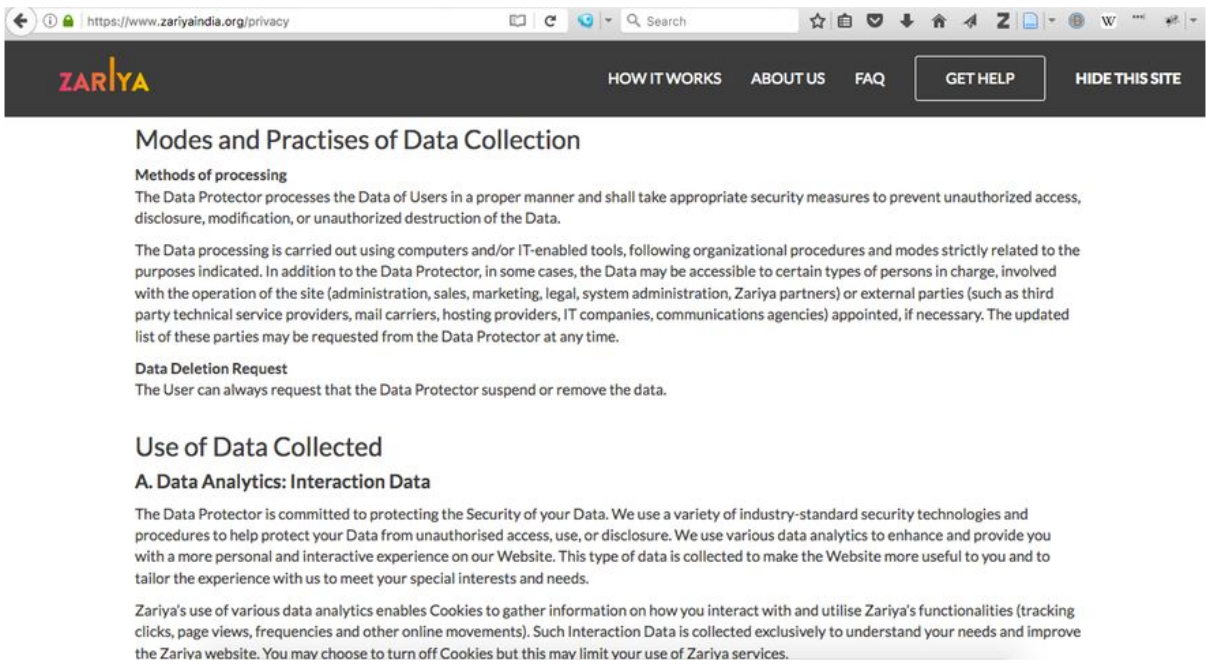
* EULA - **end-user license agreement** or **software license agreement** is the contract between the licensor and purchaser, establishing the purchaser's right to use the software [Source: Wikipedia].

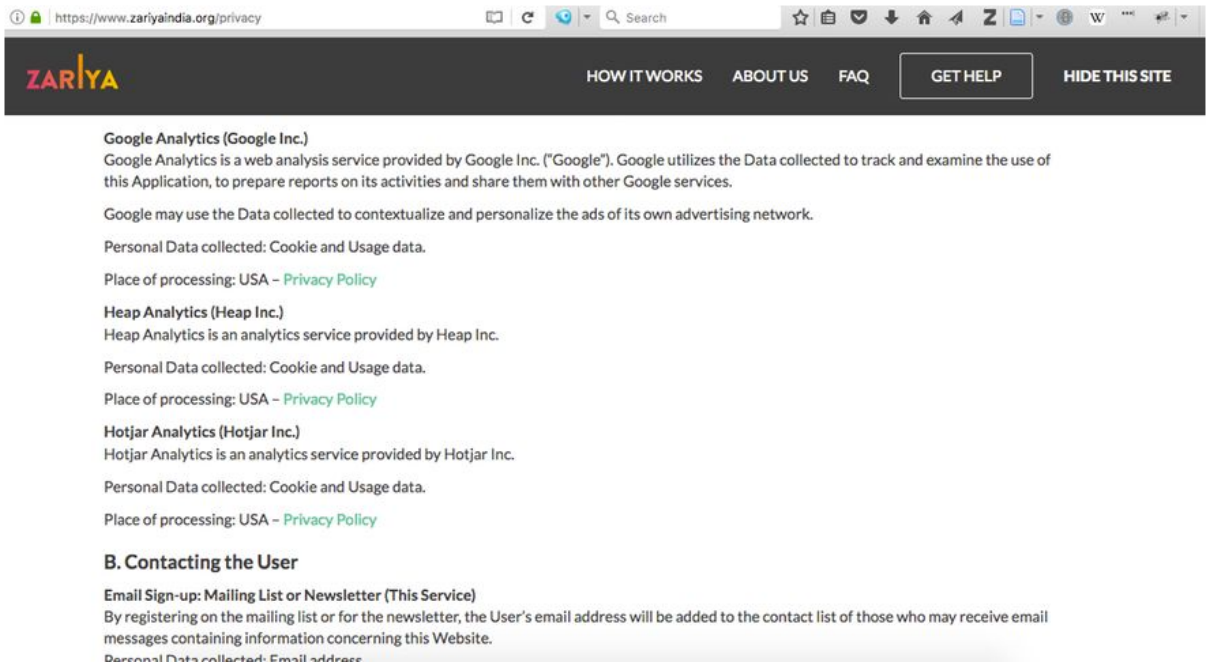
In most platforms EULA agreements are long and have a language crafted by the lawyers. Such a format makes it unreadable which means users are unaware of what they are getting

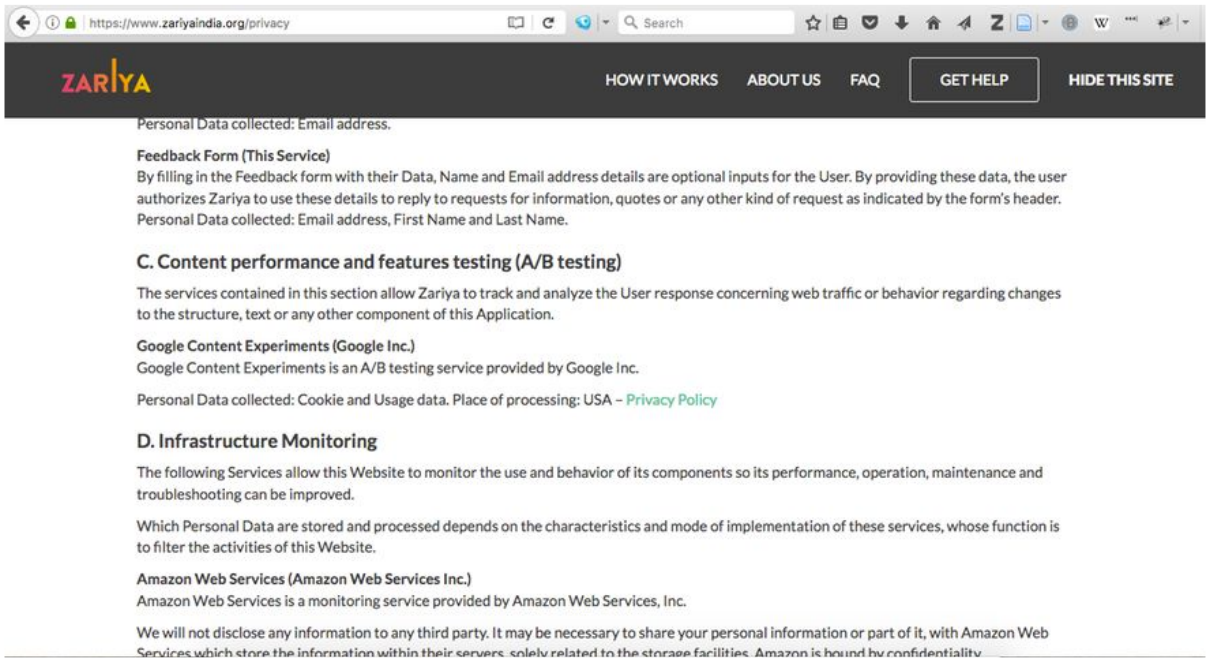
into and what rights and protections they have and what they are giving up. Which makes them partial towards the platform creators instead of the users.

One way to communicate the trust to users is to design better ways of communicating this information take for instance the data policy written by Zariya
https://www.zariyaindia.org/privacy



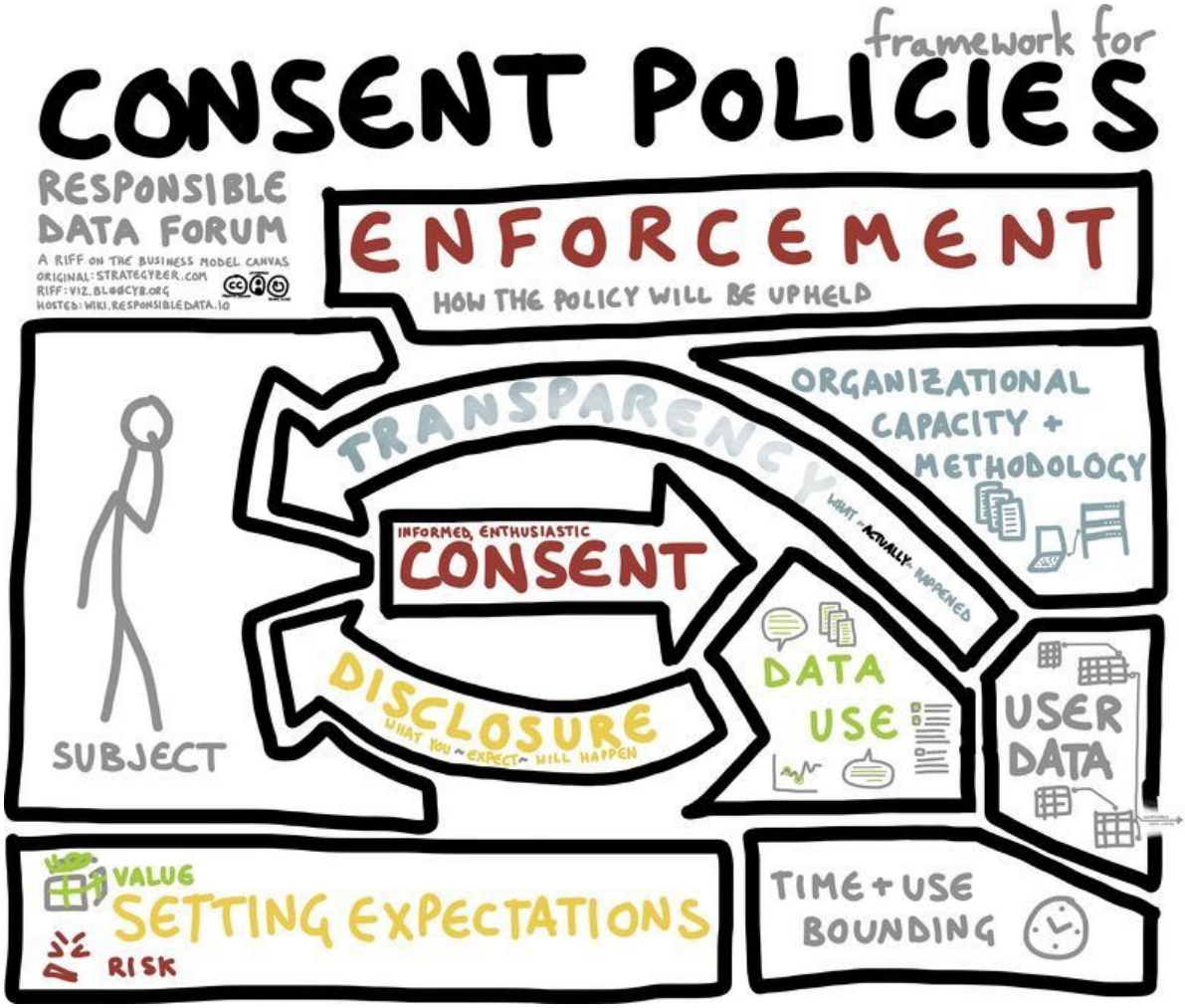






* Consent Policies - While building a platform for a social cause it is very important to gain consent.It is also a good practice to include these in private platforms too. Consent document is an elaborate way to inform the user on the use of information. It is also a way to inform a user on how the platform will work for them and what kind of information will be stored and for how long. Here is a framework to a good framework from responsible data forum on designing consent policies for data

https://wiki.responsibledata.io/Framework_for_consent_policies

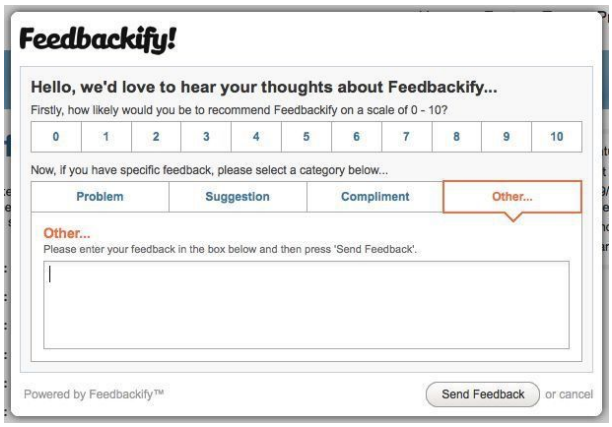


Graphics Courtesy : Willow Brugh

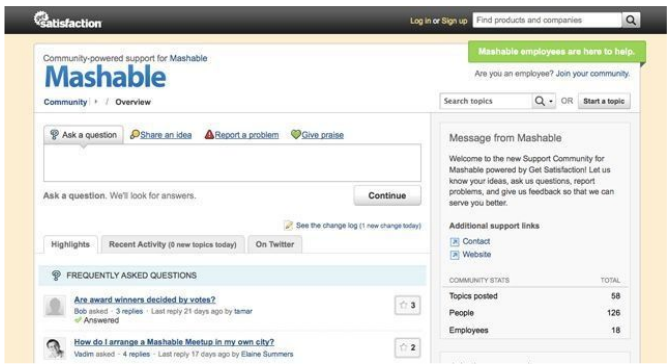
Feedback Mechanism :

One of the reason for most platforms build for diversity and inclusion to fail is the lack of a simple and visible mechanism for feedback. It is assumed by the platform that all users understand the working of a platform. But, the reason for low user on boarding is the user failing to understand how to use a platform. A visible and easy to use feed back mechanism ensures these issues are captured.

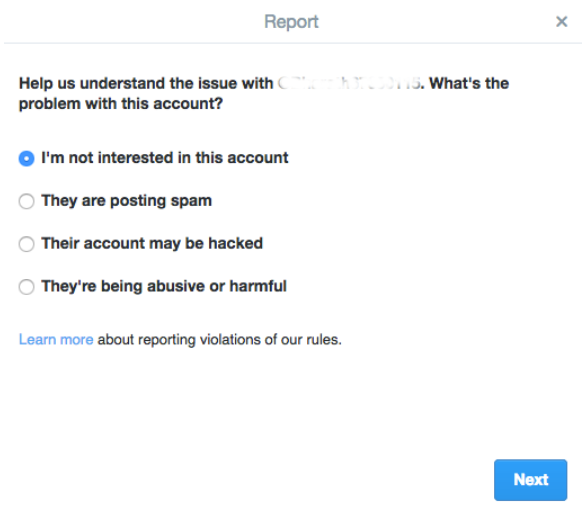
- 1. Simple to use forms
- 2. Flexible Feedback

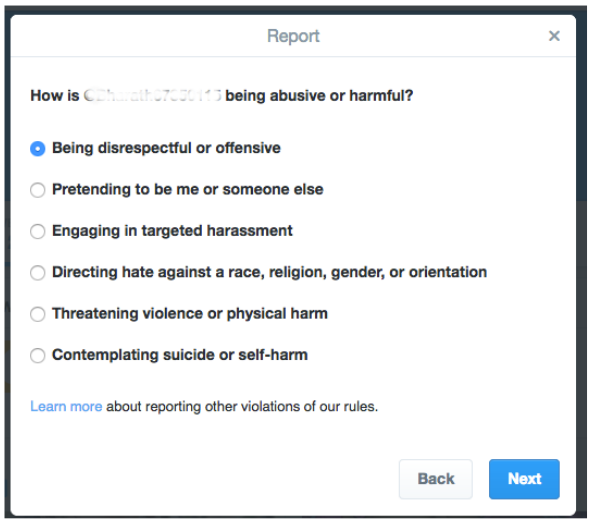


3. Notification of feedback



Interactivity and Its importance





When components are used as form of communication sometimes it is easy to identify required responses. But there are times when responses can be complex and need expression. Forms for example though useful for collecting information they are very restrictive to an user. Look at the above form by twitter to collect a report for harassment it allows users to report under general umbrella terms. When one chooses harassment there is limited options of reporting. we have no option to report something like for eg sending or tweeting offensive images.
When designing for inclusion and diversity it is important that essential components like profiles , feedback , reports include a well thought out design they include flexibility and interactiveness. To read more about interface and restrictions we recommend this talk by mushon
http://opentranscripts.org/transcript/interfaces-demand-obedience/

Flexibility in Modules not only allows for expression sometimes this can also act as a hook to tackle harassment on platfoms . Nathan Mathias a researcher at MIT Media Lab recently experimented interaction on nudging fact checking on the rediff community r/worldnews . Harassment is not an issue that can solved simply by platforms it needs human intervention and to enable that to happen it important that design includes flexibility.

Other Policies / Measures

Anti Bias Policies :

Opposing bias and have a policy to deal with it instills confidence in users. We recommend that you create such a policy to welcome users

Airbnb Community Commitment

Beginning November 1, everyone who uses Airbnb must agree to a stronger, more detailed nondiscrimination policy. We aren't just asking you to check a box associated with a long legal document. We're asking everyone to agree to something we're calling the Airbnb Community Commitment, which says:

We believe that no matter who you are, where you are from, or where you travel, you should be able to belong in the Airbnb community. By joining this community, you commit to treat all fellow members of this community, regardless of race, religion, national origin, disability, sex, gender identity, sexual orientation or age, with respect, and without judgment or bias.

Language and Culture

* Language :
Localization is a standard process followed by the industry to support various languages. While the popular languages have good databases in terms of languages. There is still dearth of material for less popular ones. It is important to build a mechanism to increase this pool and use open language tools.
This is also an important factor to consider while building for accessibility because of limited support available for text to speech conversion in these languages

* Platform creators need to be culturally aware to understand and respect the differences in ideas, traditions, behaviors, beliefs and lifestyles not only between one culture and another but from one region or one locality to another. Disregarding the codes of 'micro-cultures' for communication can exclude groups.
    * Community Policies
    * Different Genders
    * Legitimate Fields - remember that legality is a very relative term.

Chapter 2 : Architecture
* Data
    * Collecting Data
        A golden rule to follow is to always collect data is absolutely essential. What we mean by this is not only collecting the values that is absolutely needed but also relevant information (e.g. : if you need information about the age group a particular user belongs don't collect their date of birth).
        * It is a good practices to include all the information about the being collected in the Consent Policies (https://wiki.responsibledata.io/Framework_for_consent_policies)
    * How to and Where to Store Data
        * Where you are the storing the collected data is very important. Data Storage can be both a boon and bane for your users.

* Storing data in a particular geography or a particular platform can be harmful for the users privacy. It is important to trust and understand on who your server shares the data you are storing.
Eg : Think about reproductive rights when you are building a fertility application for women.
* It is very important for the users to be able to exercise their rights and claim to their data. This is severely affected by where the data is stored. A platform should be mindful of these issues.
Eg : If you are building a financial access application storing the data in another country esp when you are doing governmental transactions can be particularly problematic

* Data Migration
* If you plan to migrate data or share the data with another platform it is recommended that the consent is obtained from the user when it is done instead of obtaining blanket permissions from the users .
* Data Migration is also a potential opportunity for data leaks. Hence it is important to design safe migration practices while transferring sensitive data

* Choosing technology Platforms

It is important to be aware of the limitations and the issues with the platform used to support the systems built by you.
Legality and rights of your users depends on the platforms you choose. Hence understand what your domain extensions mean , where your hosting is parked. The tracking your plugins do for eg : google language tools enables google to snoop on your content.
It is also important that your platform supports accessibility tools.

* Privacy and Security
* Threat Modelling

Not every information and demographic has the same threat model and not every platform requires the same practices for security. Hence it is recommended to do a threat modelling with security practitioners and define your security needs.

* Obscuring information □

While a platform used popularly has a lot of information about the users either due to initial collection or the use of analytics. It is important to recognise the potential risks to the users while storing this information. Like for example certain gender identities are illegal in certain countries.While it is important to let user have a freedom of gender expression. But In order to prevent risks to the users it is recommend to obscure gender information in the form of binary gender identities

Chapter 3 : Coding

Algorithmic Bias

Algorithm play a huge role in content creation and analytics among other in our systems today. We all assume algorithms are neutral in nature but in reality they are not. They reflect the biases of people who create and write them and those who use them.
They are the reason why women see low paying job ads and African american dominated localities are marked as unsafe.

Here are some of the ways to avoid algorithmic biases

- Peer reviews of algorithms
- Review of assumptions made by the algorithm with experts from the field
- Transparency - By opening your algorithms you invite reviews from diverse people this is important because even when you are working with experts from the field you might be dealing with one side of thought.

Chapter 4 : Testing

Writing the features is just not enough, it is also important to write corresponding test cases which will test out features in the views of diversity and inclusion .

One should add these essential test cases to their platform depending on their needs.

1. Checking for translations
2. Checking for text to speech rendering and vice versa of content
3. Checking for text to speech rendering of all user interface components.
4. Checking for use of language.
5. Checking for data values validation for exceptions

Eg : If you are building a platform which collects names and gender of a population.

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