**Data and Information:**

* ***Types and Purposes of qualitative and quantitative data:***

When creating survey or interview questions you need to ask both **qualitative** and **quantitative** questions. Qualitative data includes nearly any information that can be captured that is not numerical in nature. We collect qualitative data by using in-depth interviews, direct observation and written documents. A ***qualitative question*** requires a longer answer and will give you opinions and they do not limit the answers that can be given by the respondent. However you need to be careful that they are worded so that people will interpret them easily so you need to keep them simple. These questions enable you to work out approximate responses to enable you to determine the problem in an organisation. They are usually followed up with a question that asks for more detail. (A probing question). When determining the soundness of this form of research look at credibility, transferability, dependability and confirmability.

***Quantitative questions*** are closed questions and require a yes/no, multiple choice questions and possibly scales from 1-10 as to a person’s opinion on an issue. These give you exact values and are measurable

* **Sources of, and methods and techniques for; acquiring and referencing primary data and information.**

Data collection can come from **two sources** ***primary*** which needs to be collected from surveying, interviewing and observation and ***secondary*** which is from books, magazines, journals. Primary sources generally give you a better idea of what is actually occurring in the organisation as you are ***observing*** the people in there or ***surveying*** or ***interviewing*** either workers or customers of the organisation for which you will be creating your software solution.

* **Factors affecting the quality of data and information such as relevance, accuracy, bias and reliability.**

However, even primary sources of collection could include some **bias** so that you need to be very careful in your collection methods. **B*ias*** is where a person or organisation may not give you an accurate answer as they may have a cause to feel or show inclination or prejudice for or against something or someone. There are also other factors such as **relevance** which requires you to create questions which only give you data that is connected to the matter at hand that you are working on, **reliability** which you also need to be careful with, in that the data comes from a source that can be depended upon for accuracy, honesty or achievement. You also need to take into account the **relevance** of information which is important in that you don’t want superfluous (unnecessary) data collected as it is not needed and makes things longer. **Accuracy** of data collected is very important as inaccurate data produces inaccurate results. The accuracy is the quality or the state of being correct or precise. Always remember ***GIGO*** which means Garbage In gives you Garbage out.

* **Techniques for authorising the collection and use of data and information such as using consent forms.**

When collecting information you need to create **consent forms** which tell the people what the data is being used for and gives them information about the task that you are doing. There are different consent forms for different situations and you need to be very careful when creating these and getting them signed prior to the commencement of your research. (see: ADA example)

* **Techniques for protecting the privacy of the providers of data and information such as de-identifying personal data.**

Another factor which is very important is the fact that any information which is collected by you needs to be **kept secure** and others should not have access to it. You should also de-identify the data to make it more generalised and secure.

**De-identification** is when data that has been collected is made ***anonymous*** by removing identifying information from the dataset. This is done to protect the privacy of individuals and can be used to protect companies who are completing statistical surveys. In many circumstances data de-identification can be mandated by legal legislation or ethical guidelines that govern research. In Australia the ***National statement on Ethical Conduct in Human Research*** (2007, updated 2009), which was published by the National Health and Medical Research Council (NHMRC), suggests the term non-identified rather than de-identified. To de-identify data you would remove any identifiers like name, address, gender, date of birth or other such information from the dataset or you can encrypt this data.

When conducting research you can share data ethically and legally if you:

1. Include a provision for data shearing when gaining informed consent.
2. Protect individual’s identities by anonymising data where it is needed.
3. Consider controlling the access of data. So that only individuals that need the data can see or use it
4. Apply for an appropriate licence.
5. Or a combination of the above four.

Other security methods include, encryption, logins, access levels, SSL’s, biometrics etc.

# Bibliography

<http://ands.org.au/resource/data-deidentification.html>

(Australian National Data Services website.)