# Quality and Error Variation-Raster and Vector Data

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It is important to check the acquired data for errors due to possible inaccuracies, omissions, and other factors. The errors in the spatial data are, generally checked by printing the data or by taking its computer plot, preferably on translucent or thin paper, at the same scale as the original. The print out or computer plot is placed over the original map. The two maps ate compared visually, and the discrepancies in the form of missing data, locational errors, and other errors, are clearly marked on the print out. If the map is one of the series of the maps covering large extent of area, or the digitized data is to be examined for spatial continuity across the map boundaries. Certain operation, such as polygon formation, may also indicate errors in the spatial data.

Checking of the attribute data is also done by visual inspection of the print out. A better method of checking the attribute data is to scan the data files with computer program that can locate the gross errors such as text instead of numbers, numbers exceeding a given range, and so on. Errors may arise during the capture of spatial and attribute data in the following cases.
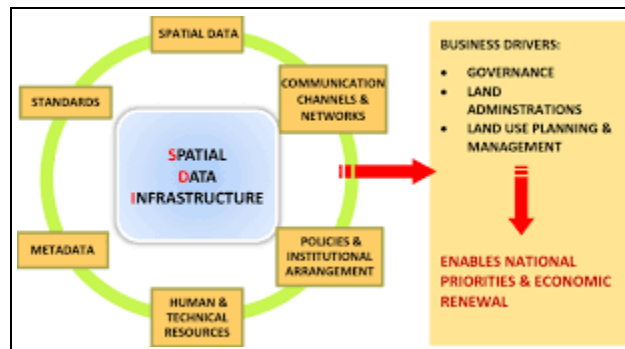
A. Spatial data are incomplete or double:

When the data are entered manually, incompleteness in the spatial data may be due to omissions in the input of points, lines, or cells. In case of scammed data, this error of omission is usually in the form gaps between lines where the raster-vector conversion process fails to join up all parts of a line. The raster-vector conversion of scanned data data can lead to the generation of unwanted spikes. Sometimes one

lime may be digitized twice, and lines and nodes may be disjointed at the intersections.

B. Spatial data are the in the wrong place:

Spatial data may have minor placement errors to gross spatial errors to gross spatial errors due to mislocation of spatial data. Minor placement errors are usually the result of careless digitizing whereas the gross spatial errors are due to change of origin or scale that occurs during digitizing, or as a result of hardware or software faults.

C. Spatial data are defined using too many coordinate pairs:

As result of both digitizing and scanning process, lines in the database may be defined using too many points resulting into use of large storage space in a computer.

D. Spatial date are at the wrong scale:

The digitization at the wrong scale results in erroneous representations of spatial data. In case of scanned data, the problem usually arises during the georeferencencing process using incorrect values.

Usually aerial photographs do not have uniform scale over the whole of image because of relief and tilt distortions, and sometimes due to aberration in the lens properties. Paper maps may suffer from paper stretch, which is usually grater in one direction than other. In addition, paper maps and field documents may contain random distortions as a result of having been exposed to rain, sunshine, frequent folding, etc. transformation from one coordinate system to another may also cause error in the spatial data.

These errors are addressed through various editing and updating functions supported nu most GIS software. Data editing is done visually by viewing the portion of the map containing the error on the computer monitor, and correcting them through the software by using a keyboard, mouse or digitizer.