

Ford and the Art of Map Maintenance

In the wake of the recent monetary turmoil, an often-heard quote is one by the late Henry Ford – founder of the Ford Motor Company and management guru – who once said: “It is well enough that people of the nation do not understand our banking and money system, for if they did, I believe there would be a revolution before tomorrow morning.” Ford understood that the cars he produced needed buyers and so he turned his workers into consumers by doubling their wages. When faced with questions by critics as to how he got the money to fill their pay packets, he responded with the abovementioned quote. He also understood that the success of car use depends on infrastructure, which is why he promoted road building and stimulated the construction of waypoints providing fuel and care. After all, a car needs maintenance to keep it running and to ensure it retains its value.

It appears that many seemingly lasting insights have faded away in the recent decades of shareholder and manager worship, or have been buried in the cemetery of outdated ideas. I recently came across a geomatics-related example in Kenya. A World Bank loan enabled the Ministry of Nairobi Metropolitan Development to conduct aerial surveys and mapping of the Nairobi Metropolitan Region (NMR). Between October 2011 and January 2014 an area of the size of Belgium was captured by overlapping airborne digital imagery and airborne Lidar. The project was aimed at providing an accurate, up-to-date and detailed digital map of the NMR, at scale 1:2,500 for areas with high development rates and population density, and at scale 1:15,000 for less-developed areas such as forests, group ranches, national parks and farm land. The Lidar data, captured by a RIEGL sensor, was transferred to a point cloud resulting first in a digital surface model (DSM) and subsequently, by removing the points reflected on buildings and vegetation, in a DEM representing the bare ground. The levels of quality and information in the product are astonishingly high. The 1:2,500 maps show the outlines of buildings, roads, trees, rivers, power lines and more. Combining images with the DEM resulted in orthoimagery, and contour lines generated from the DEM have been superimposed on the topographic maps.

Products need care to retain their value. However, no provisions have been made for updating the maps and the point clouds regularly. This is common in Africa, not only for maps but also for physical constructions such as roads. When travelling throughout the continent you may drive over impressive, brand-new highways but within five to ten years a crack in the surface will have become a cavity, and a cavity will have become a pit. After a decade or so, the road will have become unpaved and potholed, resembling little more than a path through the jungle. This is happening time and again. Why are lenders repeatedly making the same mistake? They provide the initial capital as a loan with interest but put no restrictions on maintenance and continuation, resulting in rapid deterioration of the goods manufactured. To go back to Henry Ford's main product: the car. The starter should ignite the engine to get the car running and ultimately increase the driver's earnings. That is how a loan should work –acting as a starter to enhance yield – but this is not how it works in Sub-Saharan Africa. All that is left is high debt and low productivity. Economic growth drops behind and erodes the ability to settle principal and interest. The burden remains and the need for new loans accelerates to fill the existing debt holes. A classic case of the debt trap.