

Farewell to Comptometer: *The Machine that slowed the Process*

The "Comptometer" was world's first commercially successful **key-driven "adding machine" and hence the ancestor of modern day "calculator"**. It was invented 130 Years ago in 1887 by an American, Dorr Eugene Felt, and was patented by Felt and Tarrant Manufacturing Company of Chicago. A device where an operator is required to simply type the digits of various numbers he wants to add without the need to insert a "+" symbol in between, it can be actually faster than a modern day calculator as far as the mathematical operation of "addition" is concerned. It became a rage in US and Europe immediately after its invention spawning a separate industry of its own like that of printing press and typewriters. But after World War – II as more advanced electronic calculators made their way in to the market, the old generation "Comptometers" lost the race. By 1970s and 80s these devices had almost vanished except being vintage objects displayed in technical museums of the World.

However when Vigilance undertook a study of the bill passing process in Kolkata Dock Complex they were surprised to see two of these technological relics still in action. There were even sanctioned posts of "comptometer operators" and regular recruitments were being conducted to fill up these jobs. These two machines, popularly known as "**Compto**" in Port-Contractor-Circle, were being used to **check the arithmetical accuracy of figures contained in contractor's bills by the Civil Engineering and Finance Dept. of KDS (Kolkata Dock System) respectively.**

When UK embarked on a major governance reform in 1990s an analysis was made on the various types/categories of government jobs and their functional justification. It was then discovered that posts created in 16th Century to warn British people about the invading Spanish Armada through a system of flaming beacons perched on coastal highland were still continuing with the same job specification. The existence of such techno-relics as "comptometer" in Kolkata Port Trust in the 21st Century is no less hilarious an example.

Enquiry revealed that the use of Comptometer to verify calculations in contractor's bill has been abandoned by HDC (Haldia Dock Complex) authorities, functioning under the same KoPT administration, years ago!

How many Checks does a bill need before being cleared for payment?

The basis of bill preparation in an engineering contract is the MB [Measurement Book] where progress of completion of each items of work of BOQ is continuously recorded along with the rate and the rupee-value of an activity in progress. In most organizations, normally, entries made in MB are checked and certified by field level supervisor, an entry level officer and the contractor. The details of the measurement book are extracted from time to time and presented by Contractor in the form of a bill for periodic disbursement of payment. The constituents of bill are certified by one or more officers of the department.

In KDS, entries made in the MB are first verified and certified by 3 Port level officers and the contractor. The first officer is called "Measuring Officer"; the second "Check Measuring Officer" and the third is an officer at Superintendent Engineer level. While these officers are responsible for conducting varying percentages of test checks on

the completed items, their check was actually limited to quantitative aspects only. The second part i.e. the multiplication of quantity and rate and arriving at the "rupee value" of the completed item in MB was being left to the specialized "comptometer operator". This was found to be continuing even today.

Once these 4 entities (3 Port Officers+ Contractor) and the "Comptometer" operator complete their job in MB, an abstract is prepared for making the contractor's bill. This abstract, again signed by the same 4 entities, not only contains the quantity, rate and value of the completed items but also the excess/extra items undertaken by the contractor. Thus before the bill of contractor is ready for journey to finance wing, it already bears 9 signatures.

The peculiar aspect of processing in KDS is that while another set of officials of finance wing verify the entries in the abstract, they leave the checking of numerical accuracy to their own "comptometer operator". In other words for checking the accuracy of $A \times B = C$ [A being the quantity, B the rate and C the total value] several graduate engineers (some with even higher degree) and two compto-operators were being pressed into service. Such repetitive accounting /arithmetic work can be enormously reduced by a single Excel Sheet which has been on the scene since 1995 (as elaborated below). The insistence of mandatory checking of numbers by two comptometers at two stages not only leads to undue delay in bill passing but harms the ease of doing business in the port. Sample check by Vigilance wing in one civil engineering section has indicated that a contractor's bill gets delayed by an average of 21 days on the desk of the Comptometer operator. If one observes such convoluted manner of verification for simple calculation with the use of long obsolete Comptometer machine, one is inclined to think that modern IT advancement has somehow bypassed Kolkata Port Trust.

Two of the important preventive functions prescribed for a Vigilance Unit in the latest Vigilance Manual area

"To review the regulatory functions to see whether all of them are strictly necessary and whether the method of discharge of those functions is capable of improvement" and "To leverage technology for making preventive vigilance function effective". Weeding out unnecessary and repetitive steps should be regular executive exercise for improving governance and ease of doing business.

Keeping this in view, Vigilance department suggested the following improvements to Port management:-

System Improvement Suggested:

1. The format of the abstract bill which is filled up by the contractor and signed by 3/4 Port officials; can be recreated in an Excel Sheet with cell-protected formulae for value, subtotal & total. Such an Excel template can be put in the website to be downloaded and used by the Contractors. The same template can be kept with executive department and finance department. Once submitted by the Contractor the variable data can be copied to the equivalent cells of the template kept at Port end which will automatically detect arithmetic errors if any.

2. Use of such Excel Sheet has the advantage of immediate implement ability and reduces the time consumed for repetitive checks to an instant. One need not wait for a fully automated software system that incorporates the entire tender-to-bill passing system which can come later. The capability of the aforesaid Excel Sheet can further been enhanced by introducing a few Macro / VBA Programme-snippets. The expertise available in the EDP Cell of KoPT would be enough to design such feature-rich Excel Template. It is also understood that many officers manning the EDP Cell have undergone extensive computer training and are proficient even with high-end data base and coding language like PL/SQL. Hence design of such an excel sheet will be a simple task for such in-house experts.

3. Even if it is decided to retain such comptometer operator posts, they can be gainfully redeployed at some other area where there might be urgent requirements of manpower.
