

**Office of Joint Secretary
Council of Scientific and Industrial Research**

**CSIR/2/70/JS
April 11, 2014**

Dear Sir,

Sub: Standard operation procedures, protocols, policies with regard to performance of tasks online using ERP.

With the new financial year, it is heartening to see the progressive efforts being made by our CSIR Labs in the implementation of the ERP software. The emails that are being exchanged give an indication of the understanding and awareness that has spread throughout the CSIR enterprise.

2. The core team would like to reassure all CSIR laboratories that methods have now been determined and tested for a quantum scale of improvement in the response time of the ERP software. As an illustration, by implementation of a revamped data structure and data base design with the implementation of normalisation, stored procedures, preordering of views, data table relationships and triggers/ cascading, the Finance bills related transactions taking **98 seconds** to fetch **1,40,077 records** in response to a test data base query, has been realised in **less than eight seconds** to execute the fetch. A brief overview of the principles and methods for database normalization that are being executed to speed up the ERP software is enclosed at **Annex 1**.

3. The Core Team wishes to complement all the Lab level Implementation teams and reassures them that every possible action is being pursued to ensure robust, uninterrupted and satisfactory execution of the transactions in keeping with the expectations of the users. At this juncture, users have raised several queries across the labs, the responses to which are enclosed at **Annex 2**. The responses would also help the Labs issue instructions and guidelines for the performance of tasks online and more particularly train and handhold with users in respect of adoption of standard practices, procedures, protocols & policies and manage relevant compliances.

4. In pursuit of the ongoing efforts, the Lab level Implementation Teams are required to facilitate the following ;

- (i) Notify, disseminate awareness and ensure compliance with the guidelines, standard practices, procedures, protocols & policies in respect of performance of various tasks online.
- (ii) Ensure the population of initial Opening Balances for the Financial Year 2014-15 in accordance with guidelines already sent to all FAOs (for Plan and NonPlan) and PME Heads (for Sponsored/Consultancy and other Projects).

5. During the recent deliberations at CSIR-SERC for intensive review of the progress in the implementation of ERP, the following aspects were decided upon:

- (i) In respect of HR transactions, where blank applications get created due to multiple clicks by users or because of cancellation of original applications/entries, subsequent to an approval, the system level changes require to be incorporated to disable control features after the first user click recognising the commencement of the transaction or such other appropriate mechanisms for handling cancellations.
- (ii) Arithmetical accuracies will be ensured in respect of purchase transactions by making changes for appropriate calculations concerning base value, discount, customs duty, VAT, and applicable service taxes with presentation of worksheets as appropriate to enable validate online procurement transactions.
- (iii) As regards R&D Portal, reports to cross-validate project-wise and lab-wise allocations would be provided additionally. The current difficulty for making additional allocations by drawing surplus funds available in other projects will also be addressed.
- (iv) In respect of FVC transactions involving bills sent by DDO (Puchas/Admn.), the number of process steps would be cut down to route such bills directly to Accounts.
- (v) A time bound mechanism would be developed to address issues flagged in the communications to the Core Team.
- (vi) The core team would bring out an **on-line fortnightly Newsletter** to keep all the CSIR Labs and Implementation Teams informed of the thought process, current status, instructions, guidelines and visualisation and other forms of active support.

6. Endorsements are now being sought for substantial improvements and improvements in the ERP software within the framework of an expanded scope, as also for its execution within a well-defined time frame. It is hoped that with such endorsement and additional allocation for the ERP related activities either within CSIR budget or through externally mobilised funding, the set of methods for improvement would be carried out expeditiously. It could well be appreciated that accelerated pace of execution of improvements is constrained by our own processes for approvals and endorsements, which is the very focus of the system redesign efforts that is currently underway with the implementation of ERP.

7. The Lab Level Implementation teams may hold regular reviews, notify procedures/ protocols and policies from time to time in consultation with the Directors on the basis of inputs from the Core Team.

With Regards,

Annex 1

Overview of the principles and methods for database normalization that is required to be executed to speed up the ERP software

- a. Process Flow logic when acted upon will require the organization of information in the form of records and fields which will align with such logic. Development is then guided by the nature of such logical record arrangement in the form of tables with long records having all the required fields.
- b. However, once the functional requirements in terms of the process flow, activity sequence, form design and embedding the associated business rules are factored in the development of the ERP software, the execution performance, in terms of the response time of software and its behavior becomes important.
- c. Considerations for configuration management to change mapping and allocation of roles to users and associated activity configurations, as also appropriate design of GUI to engage the user in terms of his convenience, usability, manageability etc. gets addressed during the early stages of the project.
- d. The performance of the ERP and speed of software response becomes the next significant consideration, once the basic expectation of the functional requirements, configuration management and user endorsement are met.
- e. As the number of transactions and the data volumes increase, the processing of database queries in terms of search, fetch or update operations can take considerable time, if the database is less optimally designed.
- f. Design of database is hence at this stage, seen apart process logic. A distinct and separate step of implementing appropriate data structures and data base design is examined and implemented. This relates to normalization of tables, use of primary and secondary keys, relationships between the tables for dynamic invocation suited to the program logic at various instances of time

with the use of (i) stored procedures (ii) data table relationships (iii) triggers and cascading executions at the earliest instance in the transaction lifecycle and (iv) indexes in the tables for sorting and preordering the table entries.

g. Database normalization is being implemented now on the basis of proven test case diagnosis and results as indicated. The normalization refers to the process of organizing the fields and tables of a relational database to minimize redundancy.

h. Normalization usually involves dividing large tables into smaller (and less redundant) tables and defining relationships between them. The objective is to isolate data so that additions, deletions, and modifications of a field can be made in just one table and then propagated through the rest of the database using the defined relationships.

Annex 2

Responses to queries raised by the Labs

1. Notification for effective date of online operations and adoption of ERP as the only mode of operation for specific processes and transactions classified and listed as per roles.

In this context, it would be appropriate to draw the attention to a useful framework and associated visualization of the assignment of various tasks/responsibilities (on the basis of the configuration settings made in the course of adoption of ERP software in a given laboratory) which is being built and a preliminary version of which can be seen in the ONE CSIR home page as a scrolling link.

The visualization would very soon display divisions such as (i) R&D Support (ii) EI, EII, etc., (iii) Budget, Audit, etc., (iv) Policy and (iv) Stores, Purchase, facilities, infrastructure management, etc. alongside the mapped automated processes, activity sequences associated with roles/job descriptions of the employee concerned and the readiness of these processes for performance of operations online.

In keeping with the understanding that is now available on the basis of the interactions of the lab level implementation teams with the Help Desk team, each of the Labs may consider issuing separate OMs indicating the activities that will only need be done online with respect to a given cut-off date.

2. **Notification for acceptance of applications through online mode (only) from staff for (i) GPF (ii) CEA (iii) Telephone reimbursement (iv) Medical Claims, (v) TA Claim (vi) LTC Claim or Any other claim**
(Original bills alone need to be submitted without the original application. Scanned copy need to be submitted through online application.)

Custodian of all Original Vouchers to be notified (a) Whether Finance Section? (b) Purchase Section for purchase bills? (c) Bills section for personal Claims? This will avoid unnecessary movement of bills and loss in transit. Audit can verify the bills in the respective files. However, all bills will be available as scanned copies in system under the custody of Finance.

It has been discussed and decided that documentary support for various online transactions will only be in the nature of scanned copies of the documents uploaded in the respective stages of progression of the relevant transactions. The original documents will be retained in the originating department only. Finance or Audit may, if required, requisition the original documents from the respective originating department with the help of the cross referencing details available in the transaction details. For example, in case of medical bills, HR division concerned would retain the original supporting documents and the bills and voucher will be processed in Finance using scanned copies uploaded in the system.

3. **Whether electronic sanction orders generated will require to be authenticated with manual signatures in addition to authenticating transactions online? Whether electronic signatures are to be obtained for authenticating certain transactions and if required, the details of such transactions which will require such authentications with such digital signatures. For all financial sanctions, should System level authentications be accepted as approval for sanctions for the time being. In future, whether Digital Signatures will be introduced for Financial Sanctions.**

Electronic sanction orders generated will not require to be authenticated with manual signatures in addition to authenticating transactions online. As regards authentication for critical transactions, it has been decided to implement OTP (One Time Pin) type authentication procedures through SMS like is being done in the case of banking transactions. Digital Signatures for approving/Competent Authorities would however be obtained for use to authenticate relevant final stages of approvals/sanctions.

In respect of purchase orders, gate pass, letter of credits or certain documents for the purpose of customs duty exemption or clearances, where vendors may insist, the concerned labs may take a call for providing manual authentication in such cases.

4. **Modification in approvals and sanction for various claims. Since, extensive checks and validation are carried out at the system software level, any claim**

after being verified by DA, and thereafter sanctioned/ passed for payment by SO/DDO in the ERP is not being accepted with emphasis on the need for an additional process step for approval by US/DS or FAO/COFA (in alignment with the delegation of powers)

An appropriate change could be that SO (F&A) should pass all bills up to a permissible ceiling amount. High value bills alone need to be presented at FAO/COFA LEVEL. This will reduce the work load of Senior Officers and more of their time will be available for other managerial functions.

OR

What are all the approvals and sanctions required to be obtained at AO/COA level as per FR & SR? In accordance with the rules the work flow will be set and notification needs to be issued as different practices or being practiced in different labs in this regard.

The delegation of powers is prescribed and notified for its applicability in all government organizations. The proposal for empowering SO(F&A) with certain limited financial powers upto a prescribed limit (such as Rs. 5Lakhs per individual case of transaction) to enable him pass the bill and sign the cheque will be taken up for consideration.

Such proposal relies on the strength of the argument that the systems execute routines with embedded business rules, that cross checks the eligibility, validity, accuracy and authenticity of the transaction. Hence, delegation of powers would besides empowering SOs, free the Senior Officers to pursue higher level functions as may be require to be performed. However, this proposal would require to be examined by Finance and placed for consideration and endorsement by the GB after concurrence of Finance.

5. **Acceptance of System level authentication as authorized signature for all Green Note approvals. Notification in this regard is required.**

As per Information Technology Act, electronic documents when generated as part of a given process or transaction are held as valid. The employee authenticity is checked at the time of login and additionally with further authentication to validate with OTP or such ingenious mechanisms such as security question responses if necessary. Further SMS alerts to concerned employees or authorities ensure arrest fraudulent transactions. Bio-metric contraptions is also another possibility. However to start with login credentials are seen as sufficient authentication mechanism for Green noting and E-office transactions.

6. **Whether all registers, ledgers are to be additionally maintained as hard copies in addition to electronic records?**

There is no need for printing and maintaining hard copies of registers and reports as these can be generated online at any point in time. Systematic procedures ensure that data is backed up periodically with sufficient security protocols and Standard Operating Procedures for replication, back-up and disaster recovery. However, officers may optionally choose to maintain additional hard copies of reports and registers if desired.

7. How long to keep Manual Records for Cash Book, Broad sheets, Party wise ledgers, employee wise ledgers for various loans?

Retention of records is prescribed and notified by the Department of Administrative Reforms and Public Grievances. However electronic records and digital documents can be preserved for longer periods with appropriate protocols and procedures for archival, migration and relevant access mechanisms.

8. How long to keep IMPACT entry?

The appropriate response to this query would be that retention of IMPACT entries and parallel processing of finance in IMPACT would be carried out till such time officers and authorities gain confidence in the ERP. This call would be taken up by finance on the basis of appropriate consultations and endorsement by the competent authority.

9. Whether to keep Manual Service Book? If so at what level? Notifications of dead line for the above operations.

It can be observed that even in government of India, e-service books and e-APARs are being maintained and managed. The service books of employees can hence be maintained and managed as electronic records only. The in-built business rules and authentication ensures that service book entries are made under authentic circumstance by the authorised persons and help prevent instances of tampering. Labs may notify this practise for compliance on the basis of this communication.

10. Whether senior officers make corrections in the bills being passed without reference back to the dealing assistant.

The reasoning as to why bills requiring corrections are referred back to the assistants is to ensure that they become aware of the corrections and remember such contexts so as to not repeat mistakes or to ensure performance of tasks in the manner required and appropriate. In future changes in the ERP software, it would be examined whether overriding powers can be given to senior officers for correction with appropriate notifications to the junior officers/assistants.

11. Reduction of stages of processing in respect of bills passed by DDO purchase and DDO/SO(BillCash) where such bills are again passed through dealing assistants in finance.

The need for avoiding additional references to Diarist/ Dealing Assistant in Finance for bills originating from DDOs – SPO & SO(BillCash) will be examined and necessary change as may be appropriate will be implemented to avoid additional redundant steps in processing of certain bills.
