BUREAU OF INDIAN STANDARDS

SEPTEMBER,2021

Digital transformation of a legacy giant – Conformity assessment in BIS

This case study focuses on the digital transformation of conformity assessment activities of Bureau of Indian Standards (BIS), the National Standards body of India. BIS was one of the few organizations that started Digitalization way back in 2004 by implementing Certification Marks Management System (CMMS) for its Conformity Assessment activity. Although CMMS was the most contemporary system at that time, it could not evolve with the technological advancements and remained confined to just an event capturing module. The case also explores the dilemmas faced by BIS after implementation of BIS Act 2016 in terms of Rapid release of new Quality Control Orders (QCOs), mandating compulsory BIS certification thus mounting compliance Burden on BIS and pressure to reduce overall cost of compliance. The journey towards digital transformation in BIS began under the leadership of previous Director General Mr. Sunil Soni and later on creation of a Project Management Team (PMU) involving experts from PWC and BIS Officials. The prevailing circumstances compelled BIS to roll out Manak online (e-BIS) in a hurried manner, loaded with many flaws and inadequacies. The improper functioning of Manakonline had led Mr. Pramod Kumar Tiwari, present DG BIS to take up a radical approach to modify Manakonline. He had two options, one to revamp the existing Manakonline module with the present developer (CDAC) or to develop a new portal engaging a different team altogether. The case also explores way forward for BIS for its preparedness to face market competition when other organizations initiate conformity assessment activities, whether BIS is moving in the right direction in the path of digital transformation? Is there a better way to achieve it?

Mr. Pramod Kumar Tiwari, IAS, Director General of Bureau of Indian Standards was returning home after a hard day's work. His driver enquired whether they need to stop for a coffee on the way, but Mr Tiwari was lost in his own world. His mind was preoccupied with the thoughts regarding the meeting that day. The meeting was attended by senior officials/management team, IT Department and the leads of the software development team. The purpose of the meeting was to review the digitalization of BIS. Despite spending money and resources for a long time, BIS was still not able to migrate to the digital platforms upto a satisfactory level. Prima-facie it was evident that there was no proper planning and coordination because of which the team was not able to deliver the software modules in time, the Software Requirement Specifications (SRS) and most of the modules were incomplete. On the other hand, demand for BIS certification is also increasing due to Standards being used as non-tariff barriers to trade, the emergence of new areas such as service sectors, implementation of the new BIS Act etc. Therefore, in addition to the simplification of the business processes, holistic migration towards digital transformation is of paramount importance.

D K Singla, Vibha Rani, Bhavana Sharma, Thechano C Ovung, Manikandan K prepared this case. This case study has been prepared as part fulfillment of the training on Preparation of Case Studies organized by NITS of BIS. Cases have been developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Introduction

Conformity Assessment Mandate to BIS

In the twilight years of British rule in India, the country was faced with the gigantic task of building up the industrial infrastructure. The Institution of Engineers (India), was charged with the preparation of the first draft of the Constitution of an Institution that could take up the task of formulation of "National Standards". This led to the Department of Industries and Supplies issuing a memorandum on September 3, 1946, formally announcing the setting up of an organization called the "Indian Standards Institution" (ISI), which came into being on January 6, 1947. In June 1947 Dr Lal C. Verman took over as its first Director General. Its mandate was to prepare and promote standards for adoption by Indian industry including quality certification of goods.

With the implementation of the BIS Act 1986, ISI was renamed as the Bureau of Indian Standards (BIS) with clearly defined statutory powers. The Act was revised as BIS Act, 2016 establishes BIS as the 'National Standards Body'. The BIS Act 2016, Rules and Regulations framed thereunder authorizes BIS to undertake conformity assessment of products, services, systems and processes, thus broadening the scope of activities and mandate to the organization under the New Act.

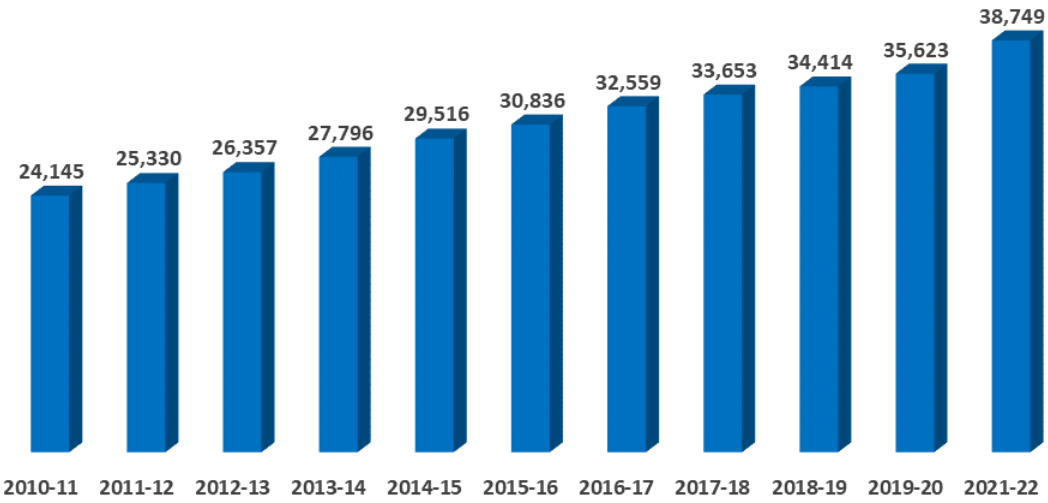
Conformity assessment overview-Global footprint

The conformity assessment schemes laid down in BIS (Conformity Assessment) Regulations, 2018 can be accessed through the link https://bis.gov.in/index.php/the-bureau/bis-act-rules-and-regulations/.

Product Certification Scheme (Scheme-I): Under this Scheme, licence to use or apply BIS Standard Mark may be granted by the Bureau for goods or articles, manufactured in manufacturing premises and conforming to all the requirements of the relevant Indian Standard(s). The presence of a BIS Standard Mark, on a product, is an assurance of conformity to the specifications. Through its surveillance operations, the Bureau maintains a close vigil on the quality of certified goods.

See Exhibit 1 for Year-wise increase in no. of BIS product certification licences (Domestic Manufacturer).

Exhibit 1: Year-wise increase in product certification licences (Domestic Manufacturer)



Source: www.bis.gov.in

Compulsory Registration Scheme (CRS, Scheme II): Under this Scheme, licence to use or apply a Standard Mark, through registration based on self-declaration of conformity, is granted by the Bureau for goods or articles.
See Exhibit 2 for BIS Global Footprint under CRS, Scheme II.

Foreign Manufacturer Certification Scheme (FMCS): FMCS is a scheme under which a BIS licence is granted to a foreign manufacturer in accordance with Bureau of Indian Standards (Conformity Assessment) Regulations, 2018. BIS as of June 2021 has set its global footprint in 53 countries for over 114 standards.

See Exhibit 3 for BIS Global Footprint under FMCS.

Exhibit 2: BIS Global Footprint under CRS, Scheme II

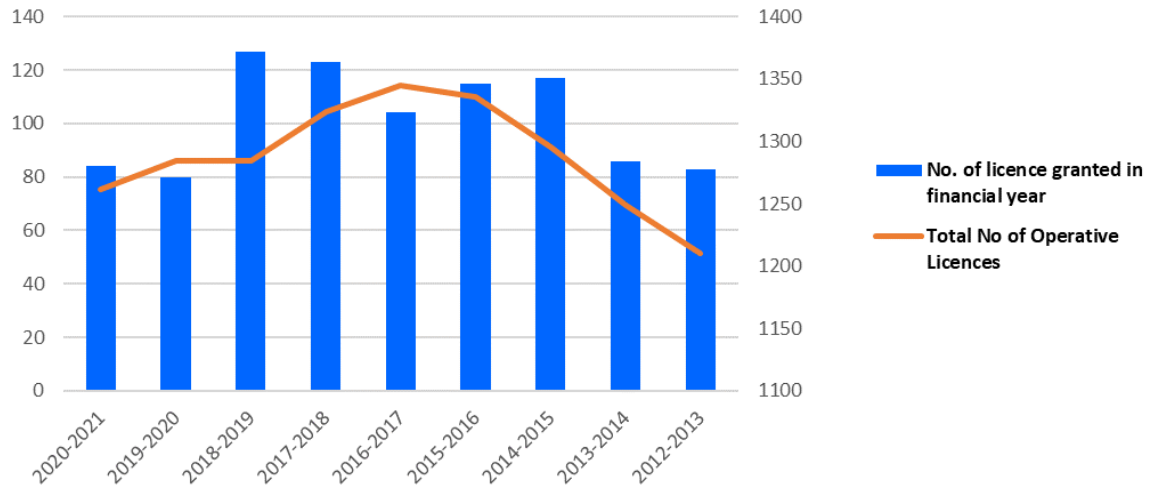
Source: www.bis.gov.in

Exhibit 3: BIS Global Footprint under FMCS

Source: www.bis.gov.in

Management System Certification Scheme (MSCS): The Management Systems Certification and its operations are carried out as per Scheme- III of BIS (Conformity Assessment) Regulations, 2018. The Management Systems Certification Department coordinates the Systems Certification activities as per ISO/IEC 17021. See Exhibit 4 for Management Systems Certifications under certification.

Exhibit 4: Management Systems Certifications under certification



Source: www.bis.gov.in

The context – digital transformation in BIS

BIS, the National Standards Body of India has always been keeping itself abreast of technological innovations and developments not only by developing standards and conformity assessment schemes in those areas but also by incorporating the technological innovations in its very process flow. BIS has been providing traceability and tangibility benefits to the national economy in a number of ways – providing safe, reliable quality goods; minimizing health hazards to consumers; control over proliferation of varieties etc. through standardization, certification and testing. In order to make its systems and processes efficient & fast and expand the horizon of conformity Assessment schemes; adoption of digital technologies, development of new digital platforms and transition of work processes on digital platforms had become overdue.

Computerization in BIS

Adoption of computer systems and IT platforms in the functional areas of BIS started way back in 2000 by the then DG, BIS, Shri Nirmal Singh. By 2004, BIS was able to create some desktop-based applications/software for standard formulation work, and an independent application known as CMMS [Certification Marks Management System] for BIS Product Certification work. The CMMS was much more impressive software keeping in mind the technological advancements at that point in time. However, CMMS had limited capability, it was mainly used to capture important information about the applications received manually for grant of a licence, new licences and operation of existing licences. It was not designed to handle the workflow of the BIS certification scheme online and also lacked interface and communication with external users i.e., BIS applicants and licensees.

Although BIS started using computer systems and software in its fundamental activities at an early stage, however, due to lack of coordination and heterogeneous software modules without interoperability. The system could not progress towards the holistic migration towards digital platforms, despite serious initiatives, and efforts by some of the senior officials like Mr P K Batra (Sc-G, DDG (CRO)) A brief history of computerization in BIS is given in Annex-1.

Digital transformation

The Present Director General (DG) of BIS Mr. Pramod Kumar Tiwari and DGs in the recent past Mr. Sunil Soni, Ms Surina Rajan took a lot of interest in transforming BIS into a digitally enabled organization. A lot of proactive steps were taken for its upgradation towards this digital transformation and to revamp the existing systems flawed with system inadequacies.

As a result, most of the fundamental activities of BIS have started gradually migrating to digital platforms. A single platform e-BIS portal (www.manakonline.in) is now in place which caters to all the activities, work processes, internal communication and stakeholder interface not confined to manufacturers, licensees, or applicants, but common consumers as well.

In the present scenario, where the entire world is stricken by the ongoing pandemic (Covid-19), digital transformation is of paramount importance. Since last year the widespread Covid-19 pandemic has forced organizations to a new culture i.e., "work from home", the culture that helped every organization in achieving business continuity.

If we compare the pre and post digitalization scenario in the organization, we must reiterate that BIS was one of the few organizations after the banking sector in the country that had started their gradual transformation towards digitalization and the first step was the successful implementation of CMMS system in 2004. The system could not be upgraded on time and in the pursuit to catch up with the time lost, some hasty decisions were taken. These resulted in many systems and processes operating in silos that could not function as expected and also the user could not keep pace with the rolling timelines.

The organization set up and leadership profile

The Bureau is a Body Corporate consisting of 25 members representing both Central and State governments, Members of Parliament, industry, scientific and research institutions, consumer organizations and professional bodies; with the Union Minister of Consumer Affairs, Food and Public Distribution as its President and with Minister of State for Consumer Affairs, Food and Public Distribution as its Vice-President. Director General, BIS is the head of the organization. The structure of BIS is given in Annex-2 and the organization chart of BIS is given in Annex-3.

Introduction of past DGs and other key positions

Before the incumbent director general Shri Pramod Kumar Tiwari, who joined in 2019, the names of the previous director generals are shown in Annex-4. The present DG Shri Pramod Kumar Tiwari is an IAS officer of the 1991 batch of Assam-Meghalaya Cadre. He is guiding BIS, the National Standards Body of India, to achieve its vision to be the leader in matters concerning Standardization, Certification and Quality.

IT Services Department of BIS

The Information Technology Services Department (ITSD) was established in 1990 and entrusted the responsibility to manage the IT infrastructure of the BIS. Before the present Head (ITSD) Mr P Rajesh, senior scientific cadre officers P K Batra, Mr AM David, Mr R K Kain led the department.
In addition to BIS scientific cadre officers, ITSD also consisted of seven to eight developers (php and java), two Testers, one UI designer, one Security expert, one System administrator, two Network administrators, seven to eight technical support engineers, Twelve AMC engineers (who look after computers maintenance in HQ), and CDAC Team (for development of the mana online portal).
A Snapshot of past IT infrastructure in BIS is placed as Annex-5.

The challenges faced by BIS

Organizational change - BIS Act 2016 establishes BIS as National Standards Body

With the implementation of the new BIS Act 2016, although BIS is designated as the National Standards Body of the country, at the same time the new provisions in the Act paves way for other certification bodies to operate Conformity Assessment Schemes based on Indian Standards. Besides this, the other challenges entrusting huge responsibility on BIS like standardization of services & systems, multiple conformity assessment schemes, hallmarking of precious metals, provide recall and liability of certified products etc.
With the new QCOs being rolled out at a faster pace than ever before, the compliance burden is also mounting on the organization with pressure to reduce the time & overall cost of compliance. Apart from the simplification of systems and processes, digital transformation is one of the most effective tools which if successfully deployed can mitigate the challenges ahead and enhance the capacity to deliver quality services at a competitive cost.
Because of the aforementioned situations, there was a lot of demand for BIS certification. The set-up that existed in BIS could not have catered to all these increasing demands. This mounting pressure as well as the long vision of the leadership in BIS pushed BIS to transform itself by adopting the most efficient means to achieve its goals.
The existing CMMS module catering to the conformity assessment activities in BIS had its own limitations and was not equipped to handle the aforementioned challenges posed to BIS after the implementation of the new BIS Act. The major limitations of the CMMS system were:

1. It does not support workflow in processing applications or in operating the licence. Hence maintaining and processing physical files was also necessary.
2. It was not integrated with the other modules such as standardization, or testing modules.

Cultural interventions

Nevertheless, the employees of BIS were content with it as the features in CMMS could provide all sorts of reports to the officers and management.

Digital transformation of conformity assessment – planning, bottlenecks and the challenges

From time-to-time BIS has appointed different agencies in addition to the creation of internal teams, to study and explore and to improve the IT infrastructure of BIS. Every team did their study and submitted reports and recommendations. However, due to various reasons, no projects were implemented based on the reports/recommendations.

It would be pertinent to bring other salient yet considerable setbacks/stumbling blocks, which prevented the achievement of the desired outcome:

- Inadequate support from developer towards this project
- Frequent changes in BIS requirements
- Professional competence and manpower challenges faced by developer
- Changes in BIS user department representatives
- No simplification of processes/process re-engineering by BIS
- Existing IT infrastructure, Networking, connectivity, security etc.

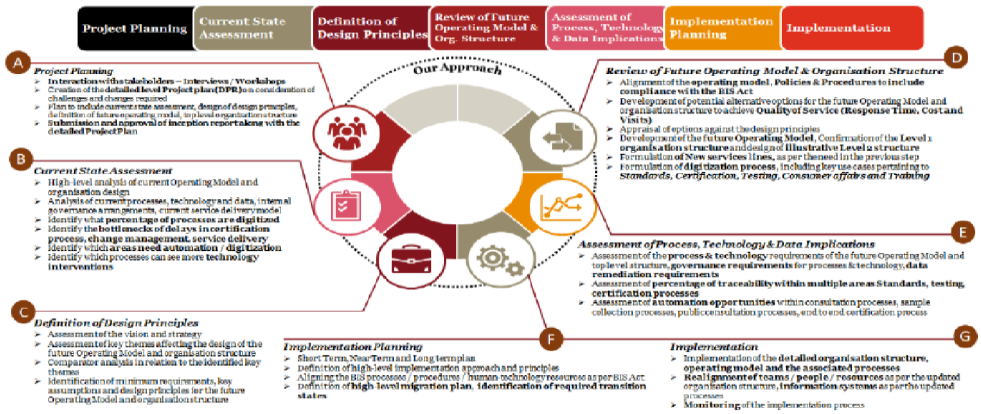
The journey begins

Before the present DG, Mr. P K Tiwari, BIS was headed by Ms Surina Rajan from Sep 2017 to Aug 2019. Ms Surina Rajan, an IAS officer of 1985 batch with 32 years of experience in various capacities at national and international levels, administration, education, skill development, micro-financing, urban planning, labour laws, infrastructure and defence manufacturing also took a lot of interest in improving BIS IT infrastructure along with the physical infrastructure.

Under her leadership, a project management team (PMU) involving four experts from PWC and BIS officials was created for the strategic and digital transformation of BIS. The team proposed the idea for e-BIS as a single platform for all activities of BIS. The PMU prepared a complete roadmap for the strategic and digital transformation of BIS.

See Exhibit 5 for a snapshot of the strategy proposed by them.

Exhibit 5: High-level approach for transformation



Source: BIS ITS Department

Implementation of the Manak Online (e-BIS)

As part of the new high-level approach, the first module that is manak online for conformity assessment activities under Scheme-I was launched in 2017 to replace the outdated CMMS. Manak online was designed to facilitate online processing of new applications for conformity assessment, online operations of existing licenses, enabled with features like online fee module, queries and reports, and internal & external communication channels. As such some of the recommendations of PMU were already implemented even before Mr P K Tiwari took over the charge of DG, BIS in Sep 2019.

However, there were few drawbacks like lack of integration with activities like standardization and lab testing module (LIMS) for sending requests for testing of samples to labs and receipt of test reports. There were many other operation flaws, deficiencies and inadequacies due to lack of coordination and competency, lack of complete SRS, and holistic vision. Because of these reasons and implementation in a hurried manner, BIS ended up creating several software/modules over a period of time, in silos and it was not possible to integrate those modules as a holistic system.

New leadership - Change management initiatives

The then Deputy Director General (North), Sh. N K Kansara made sincere efforts for listing down the issues faced in manakonline operation. He started interactions with ITS for mitigation of problems and emphasizing the need to upgrade the system so that MCR was centrally generated at HQ.
Even the monthly MCR reports of BIS Branch offices (BOs) engaged in Conformity Assessment were still being done manually using excel sheet format even after almost two years the manakonline was rolled out. The process which should have been just a click away normally took two to three days of tireless efforts to successfully compile and cross-check the data. Although the online system was developed still all the functions were performed both in online mode and also manually. As a result, the manual and online data were not matching, however, the past experiences did not instill enough confidence to stop manual mode of work.
In Oct 2019 there was change in top management and new Director General Mr. Pramod Kumar Tiwari IAS took the charge of BIS. All were discussing that BOs must bring the issues faced with the manakonline module to the notice of New DG. On the evening of Oct 30 2019, when the BOs were calling it a day, a message flashed on the inbox - This was the opportunity all were looking for, as Co-ordination cell conveyed the Meeting Notice for **Workshop on `Visioning and Planning for Strategic transformation of BIS'** on Friday, 8 November 2019 at 0900 h at NITS. The meeting was to be chaired by the new DG and all DDGs and Heads at HQ and Regional/Branch Offices /Labs/NITS were invited to attend the workshop. The schedule of the meeting was also received and displayed at Annex-6.
The meeting started with a welcome address by DDG (NITS) and opening remarks by Director General. He emphasized the need for increasing the outreach, simple & user-friendly processes, automation of workflow in conformity assessment and laboratory testing, building the efficient systems & processes, increased participation of consumers and consumer groups, transparency in working and a common platform for interface with stakeholders.
There was ample opportunity for everyone present to express their views and ideas for meaningful Strategic transformation of the organization. The officers in BOs expressed the need for complete digital transformation and highlighted the deficiencies in the current platform. Top management was directly listening to the issues faced by the Branch Offices and the manakonline's improper functioning emerged as the key point of discussion. It was now two years since the BOs were expressing concerns related to the functioning of manakonline. DG carefully listened to the issues and assured that needful will be done to improve the existing software or was even open to developing a new version.

It was a long day of discussion but at the end of the day, there was no sign of exhaustion on the face of DG. After the meeting all left for their respective places with a hope that soon they would get a system which would be user friendly and make the work process easier and simpler.

The ITS Department and senior officials of BIS and the PMU team recommended that BIS should engage some agencies for developing the module or it has to be developed in-house. However, the DG was weighing the situation. If BIS has to develop the digital platform with a new vendor/team, it has to:

- Float tenders and identify the right team;
- Study and understand BIS functioning and existing modules; and
- Overcome delays in implementing the plan

Hence, he decided to go with the present CDAC team with strict monitoring at the top management level and with stricter timelines. The series of meetings with ITS officials and the developer's team started and there was apparent lack of consensus on the overall approach and way forward. It emerged that there is a lack of coordination among developers, ITS and certification which had resulted in the issues being faced in the current module.

Some of the decisions taken during the key meeting on 19 Dec 2021 includes that BIS will share consolidated functional requirements to CDAC by 31 Dec 2019, a responsibility matrix with timelines for each module on manak online to be rolled out; CDAC to Clearly state out the Manpower Estimation, Team Lead and financial implications for each module along with response to the Timelines quoted by BIS

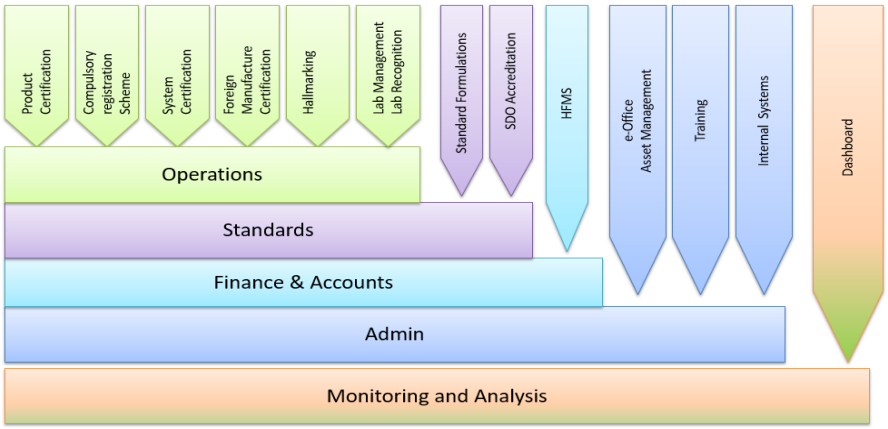
Now DG himself was aware that system needed to be revamped. He was keen to inculcate a spirit of team work and coordinated effort rather than disjointed efforts. Co-ordination team for ROs/ BOs was nominated to quickly resolve the ITS support issues, please see Annex-7.

With this level of team co-ordination, the manakonline processes started improving. As a result, the system of sending manual MCRs was dispensed away and centralized MCR generation for the entire certification activity became a reality. This was nothing less than a celebration for the branches who had struggled to match the online and offline data.

Implementation of New Plan

After several discussions and brainstorming sessions, the DG BIS and ITSD decided to go ahead with the slightly modified version of the strategy proposed by the PMU. The components/modules considered to be integrated with the new e-BIS portal is given in Exhibit 6.

Exhibit 6: Components of e-BIS



Source: BIS ITS Department

Additional elements in the new approach

Data and analytics: Data driven decision making is a major aspect of any digital transformation. By bringing data together from different verticals of BIS, real-time insights into finance, sales, marketing, product certifications, registration, standards and other processes are obtained. These insights enable departments to collaborate better, achieve better results, and outperform the competition. Data analytics enables viewing data in context and make smarter business decisions to achieve improved products and services.

Mobile friendly environment: An effort was made to make the environment mobile friendly. This was done by providing basic features like search & Report viewing, Geo-tagging of Factory and surveillance activities, and providing a direct interface with key stakeholders including consumers etc. The key features of the newly envisaged e-BIS which were not present in the old system:

1. Single Window Registration for all stakeholders
2. Internal & external Application Tracking
3. Notifications & SMSs
4. Drill-down features in Dashboards
5. Technology enabled Factory Surveillance
6. Customer Facilitation & Helpdesk
7. Mobile App
8. Paperless office

Conclusion

The system was improving fast and DG BIS had set April 1, 2020 the date for completion of migration and to dispense away with the manual working. This was a major cultural shift in the organization. BOs decided to gradually stop the manual activities and as a first step the manual processing of the renewal of licences was stopped. At this time, the Covid-19 pandemic struck the world followed by a national lockdown. The Covid 19 pandemic may result in tremendous pendency of applications for Conformity assessment and apprehensions that piling work load might eventually lead to dealing officers losing track of work in hand.

Directions for Work from Home through an online system were issued and an option for offline work was not available. Left with no choice, employees started using the revamped online system to clear the pendency of applications for grant of new licences and renewal of existing licences. Soon everyone realized that the system is now the lifeline and one after the other processes, right from granting of new licences and renewals of existing licences were successfully done through the portal. The three-week lockdown proved a blessing in disguise as it helped in change management and quick adoption of new online/ paperless functioning. All returned to their offices after lockdown with totally upto date work, reduced pendency and were looking at their cabins full of files left pending before the lockdown. The pending work in those files was already disposed off while working from the comfort of home. Scary of manual movement of files in the pandemic period further compelled developing a habit of online work culture. Now it was the time to drive the benefits of digital transformation and review the timelines for different processes like grant of new licences, renewal of existing licences, etc

New modified guidelines for grant of BIS licence were rolled out with implementation from Sep 01, 2020. Processes and systems were made more efficient and strict monitoring of time norm compliance for each activity was now possible through data and reports generated by the system. As a result, the strict compliance to time norms for BIS conformity Assessment processes became a reality and thus reduced the compliance burden on the organization and overall cost of certification to the manufacturer.

Other Achievements included capacity building, creation of data centers, creation of in-house firewall in addition to firewall provided by the ISP, upgradation of bandwidth to 1Gbps and single window system from the perspective ease of doing business.

However, few questions still remained, what more could be done to ensure that the meaningful user training can keep pace with the rolling out timelines of new systems? Was earlier system made more complex and less user-friendly in process of correcting its flaws and addition of new features? If BIS had chosen another path by appointing a new team in place of CDAC for developing the systems, where would have been BIS today in terms of digital transformation?

Annex 1

COMPUTERIZATION IN BIS – MILESTONES

1. Introduction of Computerization in BIS

Computerization in BIS started in the early eighties. There was a main frame-based Computer Center at headquarters for certain computer related activities. Regional and Branch Offices were equipped with DOS based PC system. In this initial stage, the use of computers was limited to compilation of data received from Branch Offices.

2. 2001: NEED FOR CMMS

Ever increasing popularity of ISI mark, and growth of product certification marks scheme, necessitated the need to develop a comprehensive IT system for managing major activities of BIS. Software Requirement Specification (SRS) was built for Standardization and Product Certification including Hallmarking. The project was awarded to National Informatics Centre (NIC) for providing the basic infrastructure, i.e., set of systems for all officers and staff engaged in such activities. The software developed was named Certification Marks Management System (CMMS) for facilitating Product Certification activity. Software for Standardization, however, could not be developed due to lack of support from the developer.

3. FEBRUARY 2004: LAUNCH FOR CMMS

Certification Marks Management System (CMMS) was launched in Feb 2004 to facilitate operation of the activities in Product Certification and Hallmarking. The system facilitated data entry of existing and new applications in the system, entry of all stages related to application and operation of licenses. It enabled reflection of the data entered in CMMS on BIS website for common public and report generation for BIS employees. However, the system was a primitive model restricted to data entry with no provision for automated work flow. It was not a web-based application. Data was maintained individually at Branch level, and was synchronized to a central server hosted in NIC. The process of replication was itself a separate module hosted at NIC for communication with all servers staged at BO level. Moreover, it was post action entry making system that led to duplication of effort and difficulty in real-time monitoring. There was no interface for applicant/licensee/labs to apply/use the services online or use any online mode of payment.

4. 2012: HCL ON BEHEST OF NIC

In order to develop web-based application with online interfaces for automated work flow, NIC was assigned the task to develop a refined Software Requirement Specification (SRS) for Certification Marks Management System. The said SRS was developed by HCL at the behest of NIC and included provisions for Registration Scheme and Laboratory activities. The SRS was submitted by HCL to BIS and in turn was sent to NIC for review. However, due to lack of co-ordination between NIC & BIS this project could not be carried forward.

5. 2013: PORTAL FOR COMPULSORY REGISTRATION SCHEME

Ministry of Electronics & Information Technology (MEITY) in coordination with BIS and CDAC developed a portal for the operation of Compulsory Registration Scheme**:** http://electronicstds.gov.in/CREITG/. Initially, as BIS was given limited access to this portal, the applications for grant of registration were processed offline using indigenously built software.

6. 2013: SHIFTING OF CENTRAL SERVER OF CMMS IN BIS-HQ

The central server was shifted from NIC data centre to BIS-HQ for maintaining the data centrally, and for enabling real time status updates in the data base. This mechanism also replaced the local servers being maintained at individual BO's level. It eliminated the time lag occurring due to backward replications in the earlier mechanism.

7. 2014: LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)

A software for Laboratory Information Management System (LIMS) was launched to manage test request generation by officers, and uploading of test reports by labs through a single window system developed and hosted in ITSD. The test requests generated through this system was required to be manually updated in CMMS to maintain the history of operation of licenses in the system.

8. DECEMBER 2014: PROJECT PROPOSAL FOR AN INTEGRATED WEB PORTAL TO CDAC

A project was awarded to CDAC for the development of an integrated portal encompassing major activities of BIS, namely, Product Certification, Management System Certification, Hallmarking, and Laboratory Activities. Out of the total project cost Rs. 5.83 Cr, payment of Rs. 1.98 Cr against advance and Rs 1.09 Cr against the modules that have been developed and tested has been made. So far modules relating to product certification, registration, hallmarking (only Jeweler Certification) have been developed and tested.

Modules relating to CAD have been demonstrated to the user department, however acceptance is still awaited since 2017. User department is frequently changing requirements and formats, causing major changes in the software.

Development of MSCD module also started in tandem with other modules, and application forms for online submission by applicants were developed. Post this there was a change in the team of BIS for stating requirements. With the changed team, previous efforts were put at halt and new development started with effect from July 2016, which was called as initial module of MSCD. This module has been developed in lines similar to our CMMS, i.e., software for enabling entries of all licensees and applicants so that a database can be created, and further online services can be built-in in the next phase. The said initial module of MSCD is already operational, and rest of the provisions are under development simultaneously.

9. JAN 2015: LAUNCH OF A MODULE FOR ONLINE SUBMISSION OF APPLICATION FOR GRANT OF LICENSE TO USE THE STANDARD MARK

Two services of BIS were identified by Govt. of India under the project 'Digitization of Clearances' monitored by Project management Group (PMG-III) Cabinet Secretariat; licencing under Mandatory Certification, and Compulsory Registration of Electronics & IT Goods. Based on initiative of Govt. of India, Digitization of Clearances was mandatory for the entire organization in order to facilitate ease of doing business. Based on the aforementioned project, software was launched in Jan 2015, to enable the stakeholders for online submission of application for Grant of License in order to use the Standard Mark.

10. WEB SERVICE INTEGRATION WITH CRS AND CMMS UNDER DIGITIZATION OF CLEARANCES

Web Services were developed for both the above-mentioned services of BIS separately, in coordination with CDAC, and IT Team of BIS, to integrate with the e-Nivesh portal of Project Monitoring Group (PMG) of Cabinet Secretariat under the project of Digitization of Clearances.

11. MAY 2014: HANDING OVER OF CRS PORTAL

It was decided in the meeting of secretaries Consumer Affairs and MIETY that the online portal developed then MEITY through CDAC for managing Compulsory Registration Scheme online may be handed over to BIS for its operation at no cost. The software was studied and found not fit for operation, like, it was treating every test report as a separate application though in this scheme there can be up to 10 Test reports with a single application, modification on the home page of the portal, etc. Certain fast modifications were carried out by CDAC, as per directions from BIS, and then CRS portal was launched in June 2014. Later on, the portal was modified to incorporate various other functionalities after rigorous follow-ups with CDAC, for operating the Compulsory Registration scheme. BIS then procured a separate domain name, www.crsbis.in and updated it as per the requirement in coordination with CDAC.

12. AUGUST 2015: WORKSHOP FOR THE MODULES DEVELOPED FOR PRODUCT CERTIFICATION AND RELEVANT LABORATORY ACTIVITIES

In the meantime, the module for product certification was also under development simultaneously by CDAC team, and was rendered ready for demonstration. A workshop was organized for demonstrating the modules developed for Product Certification, and relevant Laboratory Activities; and initiate User Acceptance Testing (UAT) with two nominated branches (Haryana and Delhi-1 branches). In the workshop, a review was taken by DG BIS, and was decided that since the OMPC is under revision, the new software being developed should facilitate the provisions envisaged. It was recommended to synchronize the development with the finalized OMPC, which would be made available shortly.

13. FEBRUARY 2016: REGISTRATION OF EXISTING APPLICANTS/LICENSES

In the meantime, when OMPC was under revision, it was decided to start the work of Data porting from existing software, CMMS, to the newly developed software, hosted under the domain of Manakonline.in. This resulted in a rigorous exercise, as cleaning of existing CMMS data of all the BOs. The data available in CMMS database was entered from files in hard form in the year 2004 and also subsequently CMMS was maintained with help of data/stage entries in the software. During these manual data entries there were lot of errors which led to incorrect and inconsistent database. Many optional fields were left blank such as brand names, pin codes, etc. which were mandatory in the system envisaged.

Many mandatory licenses were found entered as voluntary and vice-a-versa. Many licences under same premises were found with different party codes and address entered against each licence was not uniform. Many large scales were found entered as small scale etc. In many licences across India, state was found as Andaman Nicobar etc.

Porting could be done branch wise as there was no single consolidated real-time data available. A data cleaning activity was initiated in coordination with CMDs and branch offices to rectify such details, such as District, State, factory and office addresses, etc. Data base was huge so such corrections & cleaning took a long time. Finally, data porting was done and a module was developed separately for generating credentials of existing licensees/applicants, to enable their registration on the portal Manakonline. In the meanwhile, when the activity of data cleaning was in process, it was felt that it is necessary to bring all the stakeholders, namely, existing applicants/licensees on board via registration on the portal in order to

give them access to the features and functionalities of the portal. Since the number of such licenses/applicants was also huge, and were not mapped with premises using proper mechanism such as party code etc. A separate module was developed for mapping of existing license/applications pertaining to a single factory premises as single user (in-line with our policy of one license for each premises and standard). Branches were given the access to this module after data porting to generate credentials for our stakeholder and track their registration status.

The set of pre-registered credentials (username and password) were mapped with their existing licenses/applications. Similar practices have been followed in banking sector as well.

14. 2016: CHANGE IN PERSONNEL OF CDAC AND BIS NOMINATED REPRESENTATIVES

There were frequent changes in the development team of CDAC, and was combined with frequent changes in the BIS internal structure, which lead to lag in the development of several modules. Knowledge transfer during every change in CDAC team was felt not proper, which resulted in delays. Also, frequent changes in BIS, caused delays, and at one point of time it lacked authorised BIS representatives.

Moreover, there was constant pressure from Central Govt., Cabinet Secretariat, to start online services for BIS licencing as well, since CRS portal was already operational, along with provision for making payments online. During such urgencies, there was sluggish co-operation from CDAC, in respect of providing timely services and skilled manpower. This concern was regularly raised to CDAC, and it was informed that local units are helpless, as the procedure for sourcing the manpower has been changed to 'contractual employment' rather than inducting manpower on various equivalent grades of CDAC employees. This was assumed to be the reason for not getting required skilled manpower from CDAC for our ongoing projects.

15. MAY 2017: LAUNCH OF MANAKONLINE

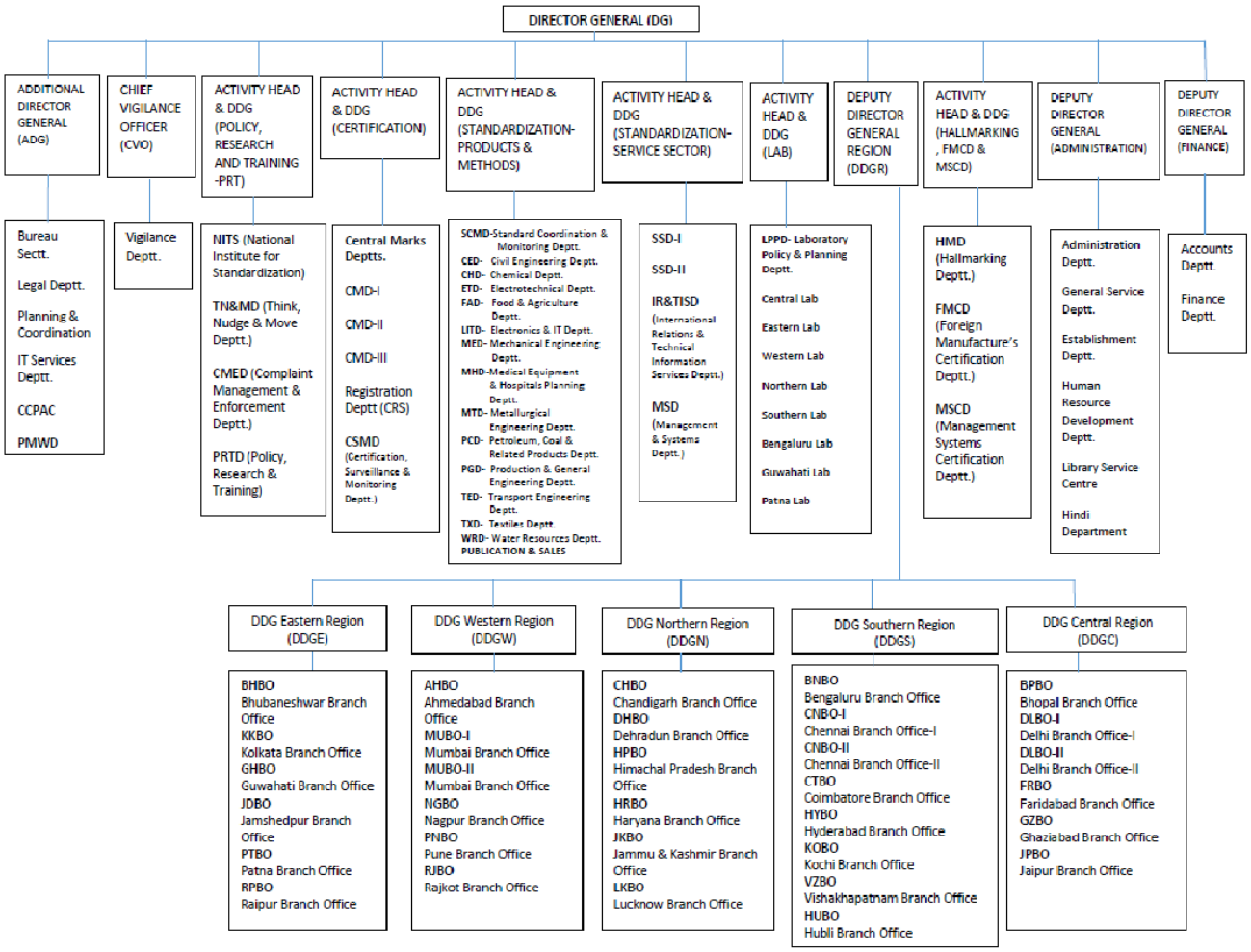
In order to meet the commitment given to MOCA and Cabinet Secretariat, it was decided in a meeting chaired by DG BIS along with all activity heads and concerned departmental heads held on 08th April 2017, to launch the existing version of portal encompassing modules for Product Certification, and related Laboratory Activities. The portal was launched (before launch testing was done from June 2016 to September 2016 at ITSD and proposals were sent for pilot testing at end user level) on 15th May 2017 to facilitate online submission of application, processing of application for grant of license, operation of license as per the requirement shared by the concerned activity heads. Presently, it is being upgraded, and other activities like Hallmarking, Foreign Manufacturer's certification, Consumer affairs, Management system are being integrated in the same portal.

16. MAY 2017 ONWARDS: Under the ambit of Digitization, BIS is also taking services of third-party software(s), and several in-house developed software, to facilitate its day-to-day activities, as detailed in Chapter 2. ITSD is also catering to the IT infrastructure requirements, and other services as and when needed by BIS.

[Source: ITSD, BIS HQ]

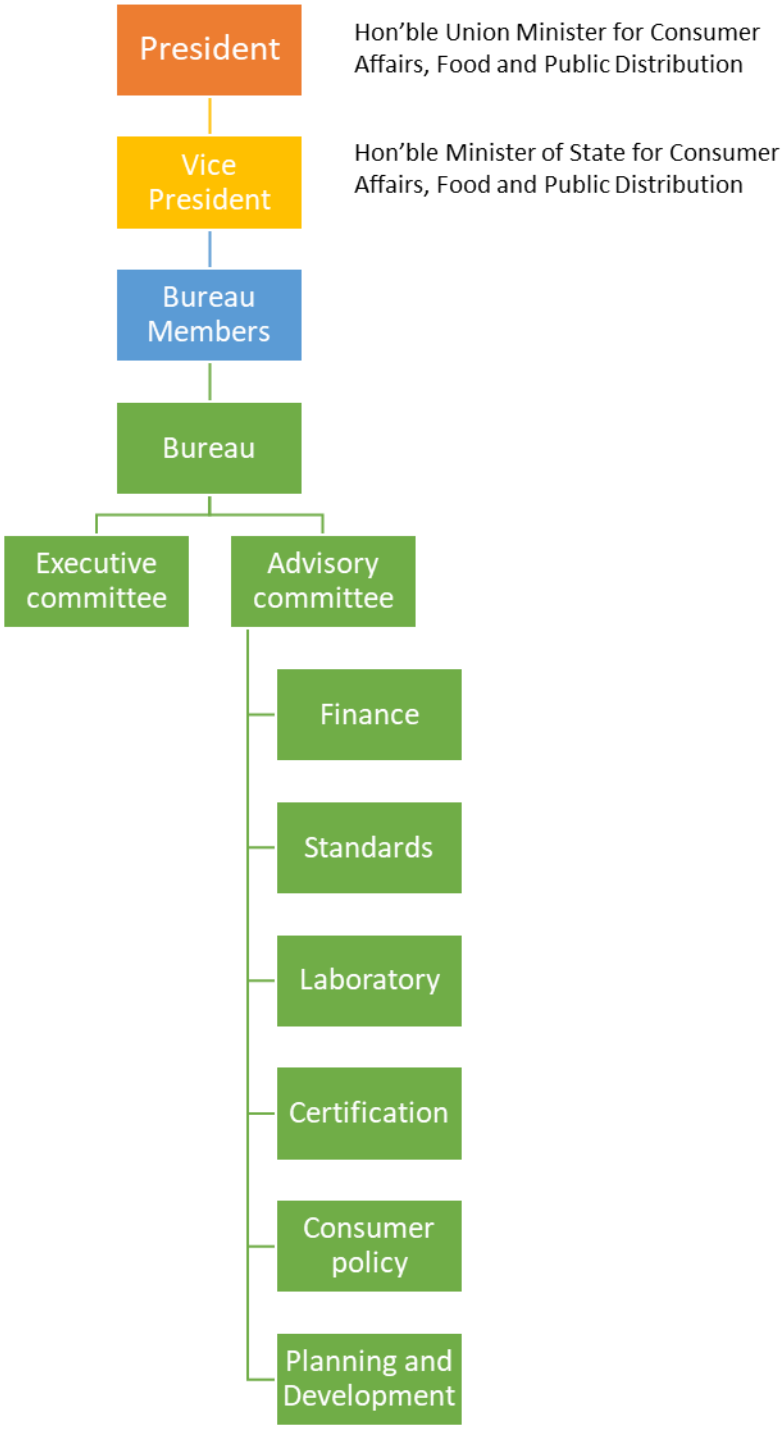
Annex-2

THE ORGANIZATION CHART OF BIS



Source: www.bis.gov.in

Annex-3
THE STRUCTURE OF BIS



Source: www.bis.gov.in

Annex-4

LIST OF DIRECTOR GENERALS LED BIS SINCE THE YEAR 2000

#	Name	From	To
1.	Shri P.S. Das	21 Jul 1997	20 Jul 2000
2.	Shri S. Nautiyal	20 Jul 2000	30 Jul 2001
3.	Shri K.M. Sahni	31 Jul 2001	12 Aug 2002
4.	Shri Nirmal Singh	14 Aug 2002	23 Dec 2004
5.	Smt. Satwant Reddy	23 Dec 2004	3 Aug 2005
6.	Shri S.P. Sharma	3 Aug 2005	30 Nov 2006
7.	Smt. Alka Sirohi, Addl. Secy. (Addl. Charge)	30 Nov 2006	14 May 2007
8.	Shri Sayan Chatterjee	14 May 2007	14 May 2008
9.	Shri Rakesh Kacker	14 May 2008	5 Aug 2008
10	Shri Sharad Gupta	5 Aug 2008	1 Mar 2012
11	Shri Alinda Chandra, ADG (Addl. Charge)	1 Mar 2012	29 Oct 2012
12	Shri Pankaj Agarwala, Secretary, MOCA (Addl. Charge)	29 Oct 2012	19 Nov 2012
13	Shri Afzal Amanullah, AS, CA, F&PD	19 Nov 2012	1 Jul 2013
14	Shri Pankaj Agarwala, Secretary, MOCA (Addl. Charge)	1 Jul 2013	1 Jul 2013
15	Shri Sunil Soni, IAS	2 Jul 2013	28 Nov 2014
16	Shri G. Gurucharan, IAS	28 Nov 2014	6 Jan 2015
17	Shri M.J. Joseph, ICAS	6 Jan 2015	14 May 2015
18	Shri G. Gurucharan, IAS	14 May 2015	30 Jul 2015
19	Smt Alka Panda, IAS	30 Jul 2015	31 Jul 2017
20	Smt Madhulika P. Sukul, AS (CA), Additional Charge	1 Aug 2017	02 Aug 2017
21	Shri Sanjay Kumar Singh, IAS	2 Aug 2017	11 Sep 2017
22	Smt Surina Rajan IAS	12 Sep 2017	31 Aug 2019
23	Shri Rohit Kumar Parmar, IES	02 Sep 2019	25 Oct 2019
24	Shri Pramod KumarTiwari, IAS	25 Oct 2019	Till date

Source: www.bis.gov.in

Annex 5

IT INFRASTRUCTURE

Hardware Details

#	ITEM	Qty	REMARKS
1	Server	9	Both rack and tower servers are available at BIS Headquarters. It is used to host our applications e.g., CMMS, SFSM, Login Module etc.
2	Routers	2	Networking equipment is used to provide and manage network/internet connection at BIS Headquarters.
3	Network Switch	31	
4	Unified Threat Management (UTM) Device	1	
5	Leased line	2	The 34 Mbps and 10 Mbps leased lines are connected to NIC for availing internet services.
6	Internet services	-	Availed from NIC. Routers and network switches are installed in BIS offices to access the internet.
7	Hosting services	-	CDAC, Noida is providing data center services for manakonline.in, crsbis.in; NIC, New Delhi is hosting www.bis.gov.in.
8	E-Mail services	-	Availed from NIC. All officers and staff are eligible for receipt of official e-mail ID.
9	E-Procurement Services	-	Availed from NIC. DSCs have also been procured for the concerned officials.
10	Bandwidth Services	-	Leased lines having bandwidth of 4 Mbps and 2 Mbps are installed in ROs and BOs respectively by BSNL and MTNL which currently is under upgradation. A Virtual Private Network (VPN) for BIS has also been commissioned over the NIC network.
11	Video Conferencing Services		Availed from NIC. Feasibility of procuring Cisco Webex is being explored.

Status of software modules for each activity of BIS:

#	Software	Activity	Current Status	Hosting Info
1.	Integrated Web Portal - Manakonline	Product Certification	Developed by CDAC and in use since 15 May 2017	Hosted in CDAC Data Center
		Laboratory Activities	Developed by CDAC and in use since 15 May 2017	Hosted in CDAC Data Center
		MSCD	Developed by CDAC. First phase in use since 01 November 2017.	Will be Hosted in CDAC Data Center
		Jeweler Certification Scheme	Being developed by CDAC	Will be Hosted in CDAC Data Center
		CAD	Being developed by CDAC	Will be Hosted in CDAC Data Center
		FMCD	Being developed by CDAC	Will be Hosted in CDAC Data Center
		Assaying and Hallmarking Centers	Being developed by CDAC	Will be Hosted in CDAC Data Center
		Lab Recognition Scheme	To be Developed by CDAC	Will be Hosted in CDAC Data Center
2.	Human Resource and Finance Management System	Human Resource, Finance, Accounts, Establishment related activities	Procured as a customizable off the shelf solution from CDAC and is currently being customized	Will be Hosted in CDAC Data Center
3.	CRS portal - Crsbis.in	Compulsory Registration Scheme	Developed by CDAC in coordination with Miety and is in use since 2013	Hosted in CDAC Data Center
4.	Standard Formulation	Standards Repository, View Standards, Standards Locator, Meeting Management, Standards Development, Committee Management, Reaffirmations	Developed In-house and in use since August 2015	Hosted in ITSD
5.	BIS Website		Developed In-house and in use since August 2013	Hosted in NIC Data Center
6.	BIS Login & Intranet	Access based login for outsiders and BIS employees to access Salary, Circulars, SFMS and other functionalities	Developed In-house and in use since Feb 2014	Hosted in ITSD
7.	Module for CAD	To facilitate	Developed In-house and in	Hosted in ITSD

		common public to lodge an online complaint for BIS products/services and its processing by CAD.	use since Sep 2014	
8.	BIS-Care	Mobile App to facilitate submission and tracking of complaints.	Developed In-house and in use since June 2015	Hosted in ITSD
9.	Module for WTO-TBT	Software to disseminate WTO-TBT notifications	Developed In-house and in use since November 2016	Hosted in ITSD
10.	Library Management Software	Cataloguing of books and membership management for Library	Third Party software procured and used by Library deptt	Software configured in Library
11.	Standards BIS	Portal to facilitate sale of Indian Standards	Software procured from third party (Aspire) and used by Sales deptt	Hosted in vendor's location
		Portal for subscription/lease of Standards	Through BSB's Website/portal (third party)	Hosted in vendor's location
12.	Certification Marks Management System (CMMS)	Product Certification, Hallmarking	Developed by NIC and in use since 01 April 2004	Earlier hosted in NIC and now shifted to ITSD
13.	Laboratory Information Management System (LIMS)	Test request generation and test report uploading and tracking	Developed In-house and in use since Feb 2014	Hosted in ITSD
14.	Payroll Management System	Payroll and Salary management	Third Party software procured and used by Salary deptt	Hosted in Salary Department

Annex 6

SCHEDULE OF WORKSHOP ON `VISIONING AND PLANNING FOR STRATEGIC TRANSFORMATION OF BIS' AT NITS, NOIDA ON FRIDAY, 08 NOVEMBER 2019

S.NO.	TIME	PROGRAMME SCHEDULE
1.	0900h to 0905	Welcome Address by DDG (NITS)
2.	0905h to 0915h	Opening Remarks by DG
3.	0915h to 0925h	Introduction of the Programme by DDG (PP&C)
4.	0925h to 1015h	**Improving the system of Registration** – Increasing the outreach, simple & user-friendly processes, challenges in automation, SOP for monitoring & renewal. - **Introduction by DDG (Registration), DDG(Certification), DDG(Hallmarking), DDG(Standardization) / HoDs concerned** - **Interaction and deliberations for Plan of action**
5.	1015h to 1100h	**Building the efficient surveillance system** – Streamlining the process of selection of firms and surveillance personnel, SOP for on-sight surveillance, quality of reporting system, monitoring the compliance, addressing complaints and grievances. - **Introduction by DDG (Certification) / HoDs concerned** - **Interaction and deliberations for Plan of action**
6.	1100h to 1120h	Tea Break
7.	1120h to 1200h	**Addressing the gaps in market surveillance system** - Increased coverage, participation of consumers and consumer groups, transparency in market place operations, selection of establishments and inspecting officials, timeliness in reporting, monitoring of action taken. - **Introduction by DDG (Certification) / HoDs concerned** - **Interaction and deliberations for Plan of action**
8.	1200h to 1245h	**Improving Laboratories** - Infrastructure, equipment, automation of work flow, SOP for tests, PR review and performance audit, standardizing reporting system. - **Introduction by DDG (Labs) / / HoD concerned** - **Interaction and deliberations for Plan of action**
9.	1245h to 1330h	**Hallmarking of gold and silver jewelry** - Challenges and solutions, Functioning of Assaying & Hall marking centers, awareness generation. - **Introduction by DDG (Hallmarking) / / HoD concerned** - **Interaction and deliberations for Plan of action**
10.	1330h to 1430h	Lunch Break
11.	1430h to 1515h	Checking packed water quality – Challenges. - **Introduction by DDG (Lab), DDG(Certification) / / HoDs concerned** - **Interaction and deliberations for Plan of action**
12.	1515h to 1600h	**Identification of new standards** – Identification of sectors and trade for new standards, modus operandi - **Introduction by DDG (Standardization) / / HoD concerned** - **Interaction and deliberations for Plan of action**
13.	1600h to 1620h	Tea Break
14.	1620h to 1730h	Interface with stakeholders - Building trust. - **Introduction by DDG (MSCD), DDG (Standardization),** DDG (Certification), DDG (CAD), DDG (Hallmarking) / / HoDs concerned - **Interaction and deliberations for Plan of action**
15.	1730h to 1800h	Concluding Session

Source: Co-ordination Cell, BIS

Annex 7
LIST OF ITSD CO-ORDINATORS

Sl No.	OFFICER	MOBILE NO.	BRANCH OFFICES
1.	Shri Jagannath Majhi, Sc-E	9437082725	Ahmedabad Branch Office
			Bengaluru Branch Office
			Bhopal Branch Office
			Bhubaneshwar Branch Office
			Chandigarh Branch Office
			Chennai Branch Office - I
2.	Shri Koushik Dutta, Sc-D	9910533136	Chennai Branch Office - II
			Coimbatore Branch Office
			Dehradun Branch Office
			Delhi Branch Office - I
			Delhi Branch Office - II
3.	Shri Hemant Kr. Bansiwal, Sc-C	9868936963	Faridabad Branch Office
			Ghaziabad Branch Office
			Guwahati Branch Office
			Haryana Branch Office
			Himachal Pradesh Branch Office
4.	Ms Ankita Srivastava, Sc-C	9871127128	Hubli Branch Office
			Hyderabad Branch Office
			Jaipur Branch Office
			Jammu & Kashmir Branch Office
			Jamshedpur Branch Office
5.	Shri Nitish Kr. Verma, Sc-C	9999070236	Kochi Branch Office
			Kolkata Branch Office
			Lucknow Branch Office
			Mumbai Branch Office-I
			Mumbai Branch Office-II
6.	Ms Jyoti Kushwaha, Sc-C	9911746222	Nagpur Branch Office
			Patna Branch Office
			Pune Branch Office
			Raipur Branch Office
			Rajkot Branch Office
			Vishakhapatnam Branch Office

Source: BIS, ITSD