Transforming ‘e-Governance’ for Delivery of Integrated Services

A case study of

Electronic Bank Realization Certificate (e-BRC)
of the Directorate General of Foreign Trade (DGFT)

Dr. Rajiv Arora
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About the Initiative

This publication is a part of the Capacity Building initiative under the National e-Governance Plan (NeGP) by NeGD with an aim to draw out learnings from various projects implemented in various States/UTs and sharing this knowledge, in the form of case studies, with the decision makers and implementers to benefit them, by way of knowledge creation and skill building, from these experiences during planning and implementation of various projects under NeGP.

Conceptualised and overseen by the National e-Governance Division (NeGD) of Media lab Asia/DeitY these case studies are submitted by e-Governance Practitioners from Government and Industry/Research Institutions. The cases submitted by the authors are vetted by experts from outside and within the Government for learning and reference value, relevance to future project implementers, planners and to those involved in e-governance capacity Building programs before they are recommended for publication. National Institute for Smart Government (NISG), working on behalf of this NeGD provided program management support and interacted with the authors and subject matter experts in bringing out these published case studies. It is hoped that these case studies drawn from successful and failed e-Governance projects would help practitioners to understand the real-time issues involved, typical dilemmas faced by e-Governance project implementers, and possible solutions to resolve them.

Acknowledgment

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Abstract

Collaborating in an integrated ‘e-Governance’ project involves many issues and challenges related to process reengineering, interoperability, network redesign, evolving consensus on turf issues, leadership and change management. Since many ‘e-Governance’ applications in the country require some financial transaction, banks are a key partner in an ‘e-Governance’ application.

One of the main compliances required from exporters in implementing the Foreign Trade Policy and its various Export Promotion schemes, is to realize foreign exchange against the exports made as per the stipulated guidelines and time frame of the Reserve Bank of India (RBI). Banks were not electronically connected under the Electronic Data Interchange (EDI) network (‘e-Trade’ MMP) till 31.3.2012 for reporting Foreign Exchange (FE) earnings to DGFT. This compliance implemented through ‘e-BRC’ project launched on 1/4/2012 as pilot and mandatorily from 17/8/2012 now seamlessly connects Banks under the ‘e-Trade’ (EDI), an integrated Mission Mode Project (MMP), implemented by the Department of Commerce.

The objective of ‘e-Trade’ is to facilitate foreign trade of India by way of promoting effective and efficient delivery of services by various regulatory agencies involved in Foreign Trade to enable the Exporters/Importers to avail services from these agencies in an online environment. The major stake holders of this project are Foreign Trade Regulatory/Facilitating Agencies like Customs, Directorate General of Foreign Trade (DGFT), Seaports, Airports, Container Corporation of India (CONCOR), Inland container Depots (ICDs)/ Container Freight Stations (CFSs), Banks, Importers/Exporters, Custom House Agents (CHA’s), Airlines/Shipping lines, Directorate General of Commercial Intelligence and Statistics (DGCIS). The ‘e-BRC’ project as a core and fundamental block has enlarged and strengthened the scope of ‘e-Trade’ MMP. The implementation of the ‘e-BRC’ project has led to significant operational and strategic benefits for all stake holders. The benefits include reduction in transaction cost and time through seamless connect of entire Import/Export cycle leading to electronic reconciliation of foreign exchange earnings against exports thereby facilitating online grant of foreign trade benefits. Further the transparency and tracking of foreign exchange data has significantly improved. The project has led to elimination of fraudulent certifications also which could lead to leakages. The management of Foreign Exchange (FE) remittances has therefore significantly improved specially for cases where there monitoring of Foreign Exchange(FE) earnings is required to discharge stipulated export obligations.

The case examines various issues and challenges involved in strategically leveraging Information and Communication Technologies (ICT) for transformation through process convergence rather than a mere process translation. The operational and strategic benefits and key learnings are analysed for forging collaboration in similar integrated ‘e-Governance’ initiatives.
Key Words

Note to Practitioners/Instructors:

a. Note to Practitioners:

The key facilitators implementing ‘e-BRC’ include ‘inter-organisational process transformation’ contrary to ‘organisation centric process change’, strategic Business Process Reengineering (BPR), adoption of standards, leadership and Change Management and ensuring flexibility, user friendliness and sustainability through SOA. Practitioners could refer to these concepts and insights in implementing other integrated e-Gov projects. To rapidly upscale ‘e-Governance initiatives’ under NeGP, there is a need to focus on challenges of transformation, interoperability through standards and provisioning of integrated services. This case can appropriately be connected to the futuristic thinking underway on ramping up e-Governance initiatives by DeitY.

b. Note to Instructors:

The instructors may use this Case Study for eliciting responses on following key issues:

1. What should be the key elements of transformation while undertaking BPR in integrated e-Governance projects?

2. How can the scope of an integrated e-Governance project be defined? Should BPR be undertaken ‘organization centric’ or should it cut cross various network partners for ‘process convergence’?

3. What Change Management approaches need to be adapted? Should the transformation be undertaken gradually or should it be mandatory upfront with strong Change Management hand-holding interventions?

4. What implementation model/models needs to be followed? Should it be domain experts and in-house service provider centric/dependent or should an outside consultancy organization be engaged for a managed service model? Both models can be evaluated with regard to prevalent ecosystem and capabilities of organizations.
Project Context:
‘e-Governance’, a major initiative under the ‘National e-Governance Plan’ (NeGP) of the Department of Electronics and Information Technology (DeitY), Ministry of Communications and Information Technology, Government of India, was approved in 2006. It comprises of 31 Mission Mode Projects (MMPs), in three categories viz. central MMPs, State MMPs and Integrated MMPs. For fast track implementation of these projects, NeGP has extensively focused on establishment and strengthening of legal and policy framework through instruments like Electronic Delivery of Services Bill, 2011, National Cyber Security Policy and The Information Technology Act 2000.

Further, core and supportive infrastructure has been taken established, which includes State Wide Area Networks (SWAN’s), State Data Centres (SDCs) and Common Service Centres (CSCs). Communication Gateways viz. State Service Delivery Gateway (SSDG), Mobile Service Delivery Gateway (MSDG) and National ‘e-Governance’ Service Delivery Gateway (NSDG) to harmonize message exchange standards and protocols nationally have been established to ensure interoperability through Service Oriented Architecture (SOA). Besides this, process reengineering and capacity building aspects are being supported through the State ‘e-Governance’ Mission Teams, setting-up of ‘e-Governance’ conformity assessment centres and laying down of ‘e-Governance standards’. Cloud and Mobile platforms, the two emerging technologies need to be leveraged to speed up implementation of e-Governance initiatives.

Developments in the ‘e-Governance’ projects are mutually supportive and reinforcing. ‘e-Trade’ and ‘core banking’ are two important ‘e-Governance’ MMPs whose development has been synergized through process convergence for optimum benefits, as evident from the present case study of ‘e-BRC’. ‘e-Trade’ an MMP has been implemented with the objectives of enhancing the efficiency and efficacy of the trade cycle. The ‘e-Trade’ MMP initiated in early 1990’s, has grown through automation of trade processes managed by various stakeholders independently. The integration has been forged through agreed message exchange protocol amongst various stakeholders. The coordination has been achieved through the aegis of EDI council in Department of Commerce. The agreement on message exchange formats has indeed been a major challenge.

Project overview:
Governance of Foreign Trade Policy has a key objective of increasing India’s share in the global trade. This requires enhancing global competitiveness of India’s exports by various interventions that reduce transaction cost and time on India’s exports. To achieve these goals, ICT has been leveraged by various trade facilitation/regulatory bodies for many years. The ‘e-Trade’ MMP’s main objective is to facilitate trade by providing an online interaction
environment to various players to obtain services efficiently and effectively. The ‘e-BRC’ component as a key block has been integrated through an service oriented architecture.

Key Stakeholders

Figure 1 below depicts various stakeholders of the ‘e-Trade’ MMP. Successful implementation of ‘e-BRC’ by DGFT has been well supported by the strengths of EDI implementation DGFT and Core Banking solution (CBS) automation in various banks, the two main stakeholders of the ‘e-Trade’ MMP.

The key services covered under the ‘e-Trade’ MMP are as under:

i. ‘e-Delivery’ of services/clearances by community partners like Customs and Custodians at Seaports, Airports and ICD/CFSs to Exporter, Importer, Custom House Agents.

ii. ‘e-Filing’ of Export/Import documents by Exporter, Importer, Agents etc. to Customs and Custodians at Seaports, Airports and ICD/CFSs.

iii. ‘e-Payment’ by Exporter, Importer, Customs House Agents for:
   - ‘e-Payment’ of Custom duties
   - ‘e-Payment’ DGFT’s license fee and online issuance of various authorisations
- ‘e-Payment’ of Charges (handling/freight etc.) of Custodians of Seaports, Airports, ICD/CFSs.

**DGFT’S EDI System and the Existing BRC System:**

**DGFT’s EDI System**

The various Foreign Trade Policy (FTP) schemes endeavor to meet the objectives of global competitiveness by way of extending benefits to exporters in the form of incentives or indirect duty exemptions entailing export obligations. The governance of FTP implementation therefore includes creation of obligations, their fulfillment, monitoring and tracking, compliance and closure. This required immense close collaboration amongst various stakeholders.

DGFT as a key stakeholder in the ‘e-Trade’ MMP has successfully implemented Electronic Data Inter Change (EDI) by development of ‘online’ linkages with exporters/importers, customs, export promotion councils and amongst all its field offices. All authorizations (licenses) are today issued electronically on the basis of the ‘online’ applications filed by exporters/importers. Figure (2) depicts a schematic of the EDI network of DGFT. While Customs, a major partner, has been electronically connected since long, the banks were connected electronically only for the purpose of fee payments but not FE realizations reporting till 31.3.2012. The Export Promotion licenses issued by DGFT create export obligations which are to be discharged by undertaking obligated exports and earning the obligated foreign exchange. The proof of physical exports is authenticated by customs through electronic shipping bills while foreign exchange compliance is to be reported by a bank’s certificate titled ‘BRC’. As stated above while shipping bills were being electronically transmitted to DGFT’s server through an agreed exchange format, the BRC had to be e-enabled.

**FIGURE 2: EDI IMPLEMENTATION IN DGFT**

**Existing BRC system**

Foreign exchange realization is a pre-requisite for claiming these benefits as entitled under the Foreign Trade Policy and to close export obligations stipulated on various duty free/concessional benefits granted to them under the FTP. The foreign exchange realized against exports were (till 31/03/2012) being issued by banks to exporters in a physical form on the basis of a request made by an exporter.

The request is made by an exporter in a prescribed format under the FTP. The BRC was ink signed and stamped by bank, which verified only the relevant data of foreign exchange realization. This BRC was then physically submitted to DGFT for claiming FTP benefits. This entailed a high transaction cost and time as there were instances of mistakes which required revisit for correction and at times manual verification was also required. The physical copy of BRC also could not be integrated with the DGFT’s EDI system, as depicted in Figure (3).

In the ‘AS-IS’ process depicted in Figure -3 above, the shipping bill, which is the proof of exports was electronically transmitted by Customs to DGFT digitally signed and as per the agreed message format. The Foreign Exchange realization Certificate were filed as an ink signed physical document and therefore the electronic filing of a foreign trade policy benefits by an exporter could not have the benefit of a seamless connect. This ‘As-Is’ process required a major transformation.
To elucidate claim or an incentive of an exporter which requires submission of both shipping bill and bank realization certificate did not become seamless because of the lack of automation of the BRC document. Further, the banks could not verify a few data elements in the BRC like freight and insurance cost in an export transaction which were not captured by them in their back-end systems. Further, despite a format for BRC prescribed by DGFT under FTP, this was not amenable to even an online linkage since data was not structured and was primarily textual with no prescribed meta data standards to enable automation.

**Need to have a redesigned ‘e-BRC’ system**

The above mentioned weaknesses acted as a motivation to transform the BRC integration with DGFT’s EDI system. The factors necessitating e-BRC were as under:

i. Lack of seamless connect of FE realization in EDI system which led to delays

ii. Increase in transaction cost on exports

iii. Leakages in revenue

iv. Mounting pressure from trade to reduce transaction cost

v. Need to enhance efficiency and transparency in the governance of Foreign Trade System

Requirement for monitoring various stages of BRC’s processing viz. Issuances, frequency of submission, receipt and linkage remained adhoc, time consuming and unstructured. The need to have an ‘e-BRC’ system was therefore unavailable.

The protracted discussions on implementing the electronic BRC system had remained unconcluded and indecisive primarily because of lack of proactive ownership and non-emergence of consensus on process convergence. With export transactions increasing day by day and pressure on global competitiveness mounting, the need to reduce transaction cost became pressing and the above mentioned concerns fast-tracked the initiation of ‘e-BRC’.

**The Redesigned (TO-BE) ’e-BRC’ System – The approach adopted**

To address the inherent weaknesses of the existing manual BRC system, designing of a reengineered process required identifying key pillars and establishing unique identity of stakeholders engaged in this integrated process, identifying e-Services from different stakeholders perspective and a composite view of ‘e-Services’. Figure 4(a) and 4(b) depict the key pillars and unique identity of stakeholders as below:
Pillars of ‘e-BRC’

*Users

**e-trade’ MMP stakeholders

‘e-BRC’ Services Portfolio

Banks/ Financial Institutions

DGFT Customs, RBI, State VAT depts.

FIGURE 4(a): PILLARS OF ‘e-BRC’ STAKEHOLDERS*
*Source: Contributed by the Author as Nodal Officer ‘e-BRC’ in DGFT, Department of Commerce.

Pillars of Identity

*IEC

**IFSC

DSC’s Based Authentication

***SB No, LOCODE, GR No

FIGURE 4(b): IDENTITY ATTRIBUTES OF ‘e-BRC’*
*Source: Contributed by the Author as Nodal Officer ‘e-BRC’ in DGFT, Department of Commerce.

‘e-Trade’ and ‘Core Banking’ being two ongoing and mature projects, the unique identifiers of the three core stakeholders were already established and in use. The key stakeholders identified had a strong ‘e-Readiness’ and the unique identifiers for them were also established and in use. This, therefore, laid down a strong foundation for initiation of the ‘e-BRC’ project.

The next step was to plan designing of e-services for users and various stakeholders in the ‘e-BRC’ system, for which the individual views from perspective of a user, an e-trade partner especially DGFT and banks were captured, as exemplified in figures 5(a) to 5(c). These views

*Source: Contributed by the Author as Nodal Officer ‘e-BRC’ in DGFT, Department of Commerce.
depict the scope of e-services, their category and the peer interfaces which are essential to undertake a transformational process convergence through a strategic BPR across the entire supply chain, transgressing organisational boundaries.

The different user categories and G2C services expected by these users have been identified in figure 5(a) above. The figure 5(b) below depicts the G2B services which could be extended to various network partners. This enabled designing of the system with all partners on agreed standards.
The figure 5(c) below identifies the required/expected G2B services from a bank’s view point. The services broadly include System and Data Management and User Registration Management.

**FIGURE 5(c): A BANKS’S VIEW**
*Source: Contributed by the Author as Nodal Officer ‘e-BRC’ in DGFT, Department of Commerce.

The requirements of 3 main stakeholders were incorporated in the overall design. The figure 5(d) below presents a composite stakeholder view of services as conceptualized across the 3 pillars – users, e-Trade MMP stakeholders, and banks/financial institutions. The common support services include Standards, Gateway Integration, Authentication, Capacity Building and Data and System’s Management.

**FIGURE 5(d): STAKEHOLDER VIEW OF SERVICES**
*Source: Contributed by the Author as ‘Project Director ‘e-BRC’ in DGFT, Department of Commerce.
The identified services in figure 5(d) are depicted in table 1 below:

<table>
<thead>
<tr>
<th>Mode</th>
<th>Nature</th>
<th>Beneficiaries</th>
</tr>
</thead>
</table>
| G2C  | ‘e-BRC’ Tracking  
      | ‘e-BRC’ Application Integration       | Users (Exporters/Importers)           |
| G2B  | ‘e-BRC’ Registration  
      | ‘e-BRC’ Uploading  
      | ‘e-BRC’ Modification                  | Banks                                  |
| G2G  | Foreign Exchange, Data Sharing  
      | with RBI, Customs, State VAT departments | ‘e-Trade’ Network Partners             |

**TABLE 1: ‘e – GOVERNANCE’ SERVICES**

It can be seen that a service under an integrated e-Governance project including all essential modes of service delivery viz. G2C, G2B and G2G.

**Key Principles and Approaches for the e-BRC Project**

Keeping in view the above e-services, stakeholders and interfaces, it was realized that transformation in the delivery of integrated service of BRC generation and reconciliation by various stakeholders in their domains requires process convergence across the entire process cycle. The BPR across the entire process cycle required the following principles and approaches to be adopted:

i. **Collective engagement of all Stakeholders:**

   The efficiency and effectiveness improvement across the entire process requires improvements for every component of the process to result in a win-win scenario. This called for collective engagement of all stakeholders.

ii. **Goal Congruence:**

   Process convergence can be attained if the convergence of goal of enhancing trade efficiency could be attained. As Exporters/Importers were the common users and centric to all processes of all stakeholders, the process convergence was aimed to make the system efficient and effective from the user’s perspective, that is, reducing transaction cost and time.

iii. **Undertaking Comprehensive BPR:**

   The BPR was undertaken for transformation which called for process innovation for the entire process cycle by incorporating components like process standardization, automation, flexibility, integration and optimization. It was decided that BPR should be undertaken by the domain experts in-house with technical support of NIC. Further, the implementation model should continue to be NIC and domain expert driven rather than exploring a managed service model.
The following elements were an integral part of above mentioned process innovation:

- **Process standardization**
  - Consensus on standardized message format needs to be evolved with close interactions with Banks.
  - A standard XML message format was agreed to and BRC preparation and uploading process was standardized.

- **Process optimization**
  - Evolve Trust Based Systems to the greatest extent possible
  - Data validation only with reference to source
  - The services by all entities should be extended through service oriented framework for leveraging the maximal advantage of gateway routing and replicability. Historically the ‘e-Trade’ project established integration through message exchange protocols which posed immense consensus challenges. Adopting SOA ensured flexibility, inter operability and productisation of the ‘e-BRC’ solution for replication across the entire trade cycle.

- **Process automation**
  - Capture data at source only

- **Process flexibility**
  - Adopt SOA Architecture for scalability, flexibility and self service

- **Process integration**
  - Integrate all back ends viz. linkages with SWIFT system, IEC database, IFSC database, shipping bill and LOCODE database.

The integrated view of services and stated principles of transformation led to development of a converged process flow and an SOA framework as depicted in figures 5(e) and 5(f).

In the redesigned ‘e-BRC’ system, an XML based structured form was designed in consultation with various banks wherein only essential data, which was in the core domain of the banks, was prescribed. Other data not concerning the banks was agreed to be filed by the exporter directly on the DGFT’s website during ‘online’ filing of an application.
Under the redesigned system, the bank registers itself with DGFT on the basis of its IFSC Code. It generates ‘e-BRC’ on its own and uploads XML files at a predefined frequency. Though it was envisaged during initial discussions that BRCs from all banks would be collated and routed through an independent third party gateway, due to non-emergence of consensus amongst the banking community, it was decided that the ‘e-BRCs’ would be uploaded individually by every bank on DGFT’s Server.

The availability of e-BRCs uploaded on the DGFT’s server enables their electronic linking with the EDI shipping bills available on DGFT’s website in a repository, a novel application of Service Oriented Architecture (SOA) adopted innovatively by DGFT, as shown in Figure 5(f). It can be seen in the figure that an ‘online’ application for various schemes like Advance Authorizations (AA), Duty Free Import Authorizations (DFIA), Export Promotion Capital Goods Schemes (EPCG), Duty Entitlement Pass Book (DEPB), Incentives under Chapter 3
incentives of the FTP, can be filed by an exporter by connecting both ‘EDI shipping bill’ and ‘e-BRC’ through DGFT’s website itself, making the EDI System truly a seamless one.

Since this e-Governance project handles international trade and has a global connect, unique code identifiers related to ports, destinations, countries, products, global currencies and the data elements were aligned with the global Electronic Data Interchange For Administration, Commerce and Transport (UN-EDIFACT) standards.

**Key Implementation Issues and Challenges**

Some key issues and implementation challenges faced in this project are summarised in three categories in Table (2) below and are also briefly discussed thereafter.

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>TECHNICAL</th>
<th>ORGANISATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Process Flow Redesign</td>
<td>• Security through digital signatures</td>
<td>• Consensus and agreement on an uniform approach</td>
</tr>
<tr>
<td>• Business Network Redesign (An SOA framework)</td>
<td>• Ensuring confidentiality</td>
<td>• Timely delivery of Project</td>
</tr>
</tbody>
</table>

*Source: [http://dgft.gov.in](http://dgft.gov.in); (DGFT’s home page - e-BRC FAQ’s)*

**FIGURE 5(f): AN SOA ARCHITECTURE**

*Source: [http://dgft.gov.in](http://dgft.gov.in) (DGFT’s home page - e-BRC FAQ’s)*
<table>
<thead>
<tr>
<th>• Eliminating data redundancy</th>
<th>• Integration with various application processing systems</th>
<th>• ‘e-readiness’ of all banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Standardization of message exchange format</td>
<td>• Data Validation and Modification</td>
<td>• Capacity building and hand holding</td>
</tr>
<tr>
<td>• Data Management</td>
<td>• Data archiving</td>
<td>• Change management issues</td>
</tr>
<tr>
<td>• Flexibility to Banks and users</td>
<td>• Ensuring reliable and efficient service (server response) for (365 X 24 X 7) operations</td>
<td></td>
</tr>
<tr>
<td>• Multiple delivery channels and service categories</td>
<td>• Technology and Platform Neutrality</td>
<td></td>
</tr>
<tr>
<td>• Capturing all possible modes and nature of Foreign Exchange Realizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rational and logical assumptions to reduce system complexity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Adopting a ‘Trust Based’ approach for a simplified system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 2: ISSUES IN DESIGN AND IMPLEMENTATION OF ‘e-BRC’**

*Source: Contributed by the Author as ‘Nodal Officer ‘e-BRC’ in DGFT, Department of Commerce.*

**Process Issues:**

*EDI enabled strategic BPR and Business Network Redesign(BNR):*

The key BPR related challenges for this community network included undertaking BPR over the entire trade cycle, data to be captured only at source and Business Network Redesign (BNR) for ‘e-BRC’ data to be aggregated by establishing a third party independent gateway.

Therefore, key components of the ‘e-BRC project’ were that rather than only automating the existing processes, a strategic transformational Business Process Re-engineering (BPR) and Business Network Re-design (BNR) through establishment of a gateway, leveraging ‘web enabled EDI’ and innovative paradigms like Service Oriented Architecture (SOA) be undertaken. The BPR undertaken has been based on the principle that a stakeholder should be responsible to share its core domain data only i.e. a bank needs to transmit only the FE realisation data which is available in its domain and integrating its backend system would suffice. Any other associated data required for FTP purposes needs to be provided by an exporter while filing ‘online’ application on DGFT’s website (e.g. Insurance, Freight and Commission). This required the system to be ‘Trust Based’ and only in case of any inconsistency or an ambiguity or a doubt, DGFT would verify this data. One of the limitations was non-emergence of consensus on
aggregation of ‘e-BRCs’ through a third party gateway which inhibited the process optimisation to the desired optimal extent. Because of this ‘e-BRC’ data was agreed to be provided to DGFT’s server directly by all banks independently through SOA without any gateway. Therefore, inclusion of a gateway for ‘e-BRC’ data routing would add further value for sustainability and manageability.

The innovative implementation of SOA framework for accessing and linking ‘shipping bills’ and ‘BRC’ on the DGFT’s website has made application integration indeed seamless. The process redesign and redefinition of data requirements from banks and exporters has eliminated data redundancy and reduced the burden and flow of data for both the concerned stake holders. The clear division of data requirements has made the system quite simple.

- **Flexibility**

Another implementation challenge was existence of varying business practices and requirements of Exporters and Banks in respect of BRC generation and submission. Further the level of e-Readiness of various Exporters/Banks were different. This required providing a flexible and a self service oriented approach to banks and exporters. This was important to have all banks on board. Therefore a key feature of the system included incorporation of flexibility for a self choice on frequency of uploading data by banks themselves and creating a desired number of authorised sub-users by the main registered user depending upon their own business requirements. The flexibility was also provided to the exporters to upload the manual BRC’s through a structured data entry along with the ‘e-BRC’s being transmitted directly by banks and permitting linking of BRC with both variantas of shipping bills i.e EDI and as well as non-EDI shipping bills on the DGFT’s website. The banks have been provided option of downloading the signer from DGFT’s website. The system designed was kept hardware and platform neutral.

- **Comprehensively redesigned system inclusive of existing business practices**

One of the implementation challenges was to maintain the business as usual as for as the Foreign Trade Policy (FTP) rules on the Foreign Exchange (FE) appropriation in case of multiple export products in situations of departure from targetted foreign exchange realisation. This was important because the project was entailing transformation in processes only, and the software required the rule engine to preserve the logic of allocating Foreign Exchange (FE). The system ensured this and continues to adopt the existing practice of allocating FE realisations on a pro-rata basis for multiple products on a shipping bill and applying the same methodology in case of short realisations. The system can handle different categories of exports (physical, deemed and service) and also different nature of realisations (advance, part or short). The back-end process is fully in tune with the FTP policy. Thus, the rule engine is compatible with the FTP and transformation is undertaken only on the mandated workflow.
• **Transparency and user friendly access**

Moving towards an online tracking, linking and downloading e-BRCs required not only transparency but as well as ensuring security and confidentiality. This required design of user friendly view screens with adequate information. Exporters can track, view and print ‘e-BRC’ status on DGFT’s website. The FAQ’s on the computational methodology and process flow provides complete transparency and guidance to exporters to use the ‘e-BRC’ system.

**Technical Issues:**

• **Data validation management and archiving**

Various file, data and process level checks have been provided in the system. The procedure for data modification have been clearly stated in the FAQ’s. The issues of data management and archiving did create initial teething problem but have settled down as the project is now mature.

• **Ensuring security and confidentiality of data**

One of the major barriers in kick-starting the ‘e-BRC’ project were security and confidentiality of data. However, these two issues did not pose any implementation challenges. The usage of 2048 bit encrypted DSCs have addressed these issues satisfactorily, and more than 90 banks partnering in the project have no issues on this front.

• **Adoption of standards:**

The ‘e-BRC’ as a part of the ‘e-Trade’ MMP had global linkages as well for ensuring the import/export cycle to be seamless. Challenge was that on account of the common understanding required for various elements which required global connect like portcode, foreign currency code, country code, ITC-HS product code etc, there was a dire need to adopt global standards for ensuring interoperability. To address this United Nations Electronic Data Interchange For Administration, Commerce and Transport (UN/EDIFACT) standards were adopted. These included meta data like port code, currency code, country code etc. to ensure interoperability and integration. These standards are also certified as ISO (International Organisation for Standardisation) standards.

**Organisational Issues:**

• **Adopting an appropriate implementation strategy**

The ‘EDI’ project in DGFT has been designed and implemented by NIC. Given the long standing association of NIC in this complex integrated project, NIC was logical choice as a system developer and integration. Further, as the EDI project had stabilised a lot over
many years, the BPR was also undertaken by the inhouse domain team. The option of having a PPP based implementation and adopting a managed service model was not considered appropriate and explored/evaluated. A small data management cell already created for data management. However, it would be open to the case readers to evaluate whether a PPP based model adopted in MMP’s like passport or MCA 21 could provide a better sustainability solution.

- **Consensus Building**

One of the major challenges in rolling out the project was to arrive at consensus about implementation modalities of the project, process flow architecture and content of data to be uploaded by banks. Architecture with DGFT as the hub and banks as spokes was agreed to. The data format containing only core FE data was agreed to by all the banks for transmission through various rounds of discussions. As core banking has already been put in place in majority of the banks, e-readiness was not really a challenge though the design and development of the data uploading software had to be done by IT vendors already engaged with banks. This required internal clearances and caused some delay. The consensus was fast tracked by advocating a win-win approach for all stakeholders and continued technical handholding during the transition period.

- **Awareness creation, training and hand-holding**

One of the key challenges to the project was change management. This required an implementation strategy based on consensus building, training and effective handholding during launch and initial months. The project was though technically launched on 1/4/2012, sufficient time was provided to banks to adopt change. The project was made mandatory only w.e.f. 17/8/2012. A series of interactive sessions were conducted in various parts of the country by the in-house domain and technical team to address implementation issues and enhance understanding. These sessions were conducted separately for exporters/banks/officials, and as well as jointly for them. FAQs on DGFT’s Website facilitated the process of confidence building and fast tracking implementation.

**Outcomes of the Project**

The objective of any e-Governance initiative is to ensure that the ‘e’ component facilitates good, effective and efficient governance. In this case also the outcomes have led to attainment of these broad goals as stated below:

1. The objectives of the trade facilitation by DGFT have been significantly achieved by reduction in transaction cost and time on India’s exports.

   - Many banks are not charging any fee for issuance of BRC in the current scenario which has led to significant reduction in transaction cost.
Since this project’s implementation has increased efficiency of operations related to global stakeholders like foreign buyers and has thus contributed towards international trade facilitation, this project has been awarded the 2013 eASIA Award under Trade Facilitation category announced by Asia Pacific Council for Trade Facilitation and Electronic Business (AFACT) in Ho Chi Minh City, Vietnam on 29 November, 2013.

2. A seamless connect amongst major ‘e-Trade’ partners, including banks being connected through ‘e-BRC’, has enhanced transparency, efficiency of trade operations and service availability on a 24*7*365 basis.

3. Adoption of SOA framework makes the system flexible, user friendly and scalable to connect with other partners like Customs and RBI. The Enforcement Directorate and certain State VAT departments have also started collaborating in late 2013.

Benefits of ‘e-BRC’ Project

The simplification and standardization of the FE reporting format has eliminated data redundancy and requirement of data verification. Other benefits include enhanced flexibility in application management and security through digitally signed transmissions. Reduced footfalls and enhanced transparency with a user friendly access provided to exporters for viewing and printing an e-BRC through DGFT’s website has led to reduction in transaction cost. Impact assessment of the ‘e-BRC’ system is summarised in Table 3. Till 31 December 2013, almost 8 million e-BRCs have been transmitted to DGFT’s Server. The implementation of e-BRC has not only led to operational benefits but would also yield significant strategic benefits in near future.
<table>
<thead>
<tr>
<th>ATTRIBUTE</th>
<th>OPERATIONAL</th>
<th>ATTRIBUTE</th>
<th>STRATEGIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre ‘e-BRC’</td>
<td>Post ‘e-BRC’</td>
<td>Pre ‘e-BRC’</td>
<td>Post ‘e-BRC’</td>
</tr>
<tr>
<td>Transaction Cost</td>
<td>High due to manual documentation and data duplication</td>
<td>Significantly reduced due to automation - No paper and No data redundancy. No fee is now charged for issuing a BRC by many banks.</td>
<td>Application Integration</td>
</tr>
<tr>
<td>Transaction Time</td>
<td>High due to number of days involved in issuance Processing and multiple visits</td>
<td>‘e-BRC’ –footfalls almost reduced to Nil</td>
<td>Policy and Research</td>
</tr>
</tbody>
</table>

**TABLE 3: IMPACT ASSESSMENT OF ‘e-BRC’ SYSTEM**

*Source: Contributed by the Author as ‘Nodal Officer ‘e-BRC’ in DGFT, Department of Commerce.

**Key Lessons**

Some of the key learnings from the ‘e-BRC’ system implementation are enumerated below:

1. The Transformation in an integrated ‘e-Governance’ project could be based on following principles:
   a. Data to be captured at source and validated only with reference to source.
   b. Avoid mere automation and translation, eliminate non value added and redundant processes, standardise and integrate processes.
   c. Encourage ‘Trust Based Systems’ system to simplify processes and reduce network traffic.
   d. Adopt ‘SOA’ to ensure flexibility, Scalability and promote concept of self service.

2. Collaboration in an integrated ‘e-Governance’ project is inevitable for stake holders. It needs to be appreciated as a win-win situation. As almost all banks had implemented core banking and have kept pace in adopting new information and
communication technologies, the challenges of partnering in this ‘e-Governance project were manageable. The transformation BPR for attaining process convergence in fact has led to a seamless integration of the ‘e-Banking’ and ‘e-Trade’ MMPs. The linkage is not merely a suboptimal ‘Sigma operation’ which generally happens when BPR is undertaken with a limited scope with department’s focus.

3. The major challenges in implementation of an ‘e-Governance’ project are essentially to evolve common understanding, changing mindsets on turf and silo culture. Managing change during transition could be through intense and close hand-holding by awareness building, training and education including support through FAQs on web. If this aspect is managed well, success in implementing ‘e-Governance’ project is highly likely.

4. ‘Flexibility’ and ‘Transparency’ in system and processes is to be a fundamental building block of the design by capturing different requirements and needs of users and stakeholders. The ‘e-BRC’ system has built in these features effectively by making available tracking facility for ‘e-BRC’ status on the DGFT’s website and explaining the computations done by the system’s back end transparently in the FAQs available on the website.

5. Technology issues like Security, Confidentiality, Platform and Technology Neutrality, Data Validation, Management and Archiving are not barriers but in fact act as key enablers in reforming processes.

Way Forward

Though the project has leveraged a transformational BPR strategy to ensure integration and interoperability, a number of interventions and components can be added to further enhance sustainability and scalability of the project. These include:

- Integration of services offered by all stakeholders with ‘National Services Delivery Gateway’ (NSDG) can ensure SOA framework benefits are available across all partners. This would also ensure the process optimality on account of non agreement to have a 3rd party banking gateway for a single point of linkage for ‘e-BRCs’ uploading on DGFT’s server.
- Adoption of ‘Cloud framework’ to host application and data can enable resource sharing and replicability across all stakeholders.
- While United Nations EDI for Administration Commerce and Trade (UN/EDIFACT) global standards have been adopted, aligning and harmonising with the Metadata and Data Standards (MDDS) published by DeITY can enable interoperability related to domestic processes under the ‘e-Trade’ project.
• Managing operations through a ‘managed service provider’ could ensure that in-house professional resources are available for further development and enhancement of systems and applications.

• Leveraging some core e-Governance developmental components like ‘Mobile Seva’ including ‘Mobile Service Delivery Gateway’ (MSDG) and the e-Authentication on platform ‘e-Pramaan’ for Single Sign on and fraud management which could make the project more versatile.

Research Methodology

The case has been developed through extensive interactions with various project stakeholders. These include Banks, Exporters and associated ‘e-Trade’ Network Partners viz. DGFT, Customs and Export Promotion Councils. The interactions with stakeholders on operational issues and transformation were in structured meetings with DG Systems, CBEC, Indian Banking Association (IBA), ‘e-Trade’ MMP team in Department of Commerce and about 90 banks.

The author being the ‘Nodal Officer’ of the ‘e-BRC’ project has also contributed his own first-hand experience on various issues. The data available in public domain on DGFT’s website has been used for impact assessment. Perception of users i.e. Exporters has also been captured through interviews. These largely included the participants in technical and change management workshops organised for banks and exporters after the launch of the project.

References

i. DGFT’s Website: www.dgft.gov.in

ii. National e-Governance Plan (NeGP)’s and Department of Electronics and Information Technology’s, websites www.negp.gov.in and www.deity.gov.in respectively.


V. Saaransh – A compendium of Mission Mode Projects under NeGP, DeitY (www.deity.gov.in)
Details of Author:

Dr. Rajiv Arora, a 1986 batch, Indian Trade Service (ITS) officer was the Nodal Officer for the ‘e-BRC’ project during his assignment as Joint Director General of Foreign Trade – (JDGFT) (EDI) at DGFT Udyog Bhawan, New Delhi. He has experience in the area of Foreign Trade Policy, Bilateral/Multilateral (WTO) trade, e-Governance and Renewable Energy Promotion. He has done Ph. D from Department of Management Studies, IIT Delhi in 2003. He is a B.E (Electronics and Communications) from Delhi College of Engineering (1983), followed by M.Tech (1986) (Gold Medalist). He has also undergone a 9 months, Advanced Professional Programme in Public Administration at Indian Institute of Public Administration (IIPA), New Delhi in area of ‘Governance’ where he was awarded a ‘Gold Medal’. He is presently working as Chief Operating Officer, National e-Governance Division (NeGD) in DeitY handling Programme Management of NeGP, since 1.4.2013 on deputation. His email ID is rajiv.arora@negp.gov.in and rajiv.arora@nic.in.

Case Fact Sheet:

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Electronic Bank Reconciliation Certificate, ‘e-BRC’ by DGFT, Department of commerce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Duration</td>
<td>November 2011 to August 2012</td>
</tr>
<tr>
<td>Key Objectives</td>
<td>As a vital component of ‘e-Trade’ project to ensure seamless connectivity of foreign exchange realization certificate under the Foreign Trade Policy. The project endeavored to ensure completion of the entire Import/Export cycle leading to reduction of transaction cost and time.</td>
</tr>
<tr>
<td>Project implementation background</td>
<td>The project remained under discussions for almost 7 years (since 2003) on issues related to ownership and non-emergence of consensus on an operating model. It was conceptualized in Nov. 2011 in the present form of implementation with NIC as the service provider and a core domain team in DGFT to undertake BPR. The project was driven under the leadership of Dr. Anup Pujari, the Director General of foreign Trade. The pilot project was tested in March 2012 and launched on 1st April 2012. After successful run for 3 months, the project was made mandatory w.e.f 17th August, 2012.</td>
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<tr>
<td>Unique features</td>
<td>A service oriented Architecture adopted flexibility with incorporation of UNEDIFACT standards and a transformation BPR on process flow.</td>
</tr>
<tr>
<td>Outcomes</td>
<td>The project led to significant optimal and strategic benefits which included reduction in transaction cost and time, enhanced transparency and a systematic mandatory of FE realization against exports in the country.</td>
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<tr>
<td>Implementation structure</td>
<td>BPR primarily driven by the domain team and supported technically by in house service provider i.e. National Informatics Centre(NIC)</td>
</tr>
<tr>
<td>Current Status</td>
<td>• The ‘e-BRC’ system is fully implemented with more than 90 banks participating. As on 31st December 2013, more than 8 million e-BRCs have been uploaded on DGFTs server. The project has attained its objective of improving trade facilitation by leveraging ICT strategically and hence has been awarded the 2013 eASIA Award under Trade Facilitation category announced by Asia Pacific council for Trade Facilitation and Electronic Business (AFACT) in Ho chi Minh City, Vietnam on 29 November, 2013.</td>
</tr>
<tr>
<td>Estimated cost</td>
<td>The approximate direct and indirect cost of the project is about Rs. 50 lakh which includes the factoring in the infrastructure, technical and domain personnel man power cost.</td>
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</table>