Chapter 3.

Problem Statement, Objectives and Hypothesis

This chapter formulates the problem statement and then proceeds to set out the objectives that drove the research. These objectives have fulfilled two-fold purpose: Firstly, they helped to articulate the Hypothesis of this research. Secondly, they also provided some indicators to the research methods and the sample drawn from Indian banks.
Problem Statement

3.1 Banks have been dealing in cash & funds and hence face inherent risk of frauds. It’s more complicated with the advent of IT, as IT exhibits some odd traits like black-box nature, no face-to-face operations, trans-border web transactions, limited trails & traces, easy availability of nasty software tools on the Internet etc. Hence, sophisticated embezzlements have been often reported in newspapers & periodicals till date.

3.2 During the pre-training survey (PTS) and post-training feedback (PTF) of training programs the researcher has been conducting on various platforms like NIBM, RBI’s College, Administrative Staff College of India, or in-company programme for banks (representing a cross section of private, public & coop. sector banks form India), various issues of training effectiveness come up in discussions, as under.

(1) Banks not just have to expend monetary resources but have also to strive to relieve manpower from daily work, to be spared for training, as staff is posted across wide-spread branch network.

Deliberations in this chapter were substantially influenced by few classic texts on banking and IT. Such works helped concretize researcher’s surmises and hence are enlisted with gratitude to their respective authors in the bibliography.
(2) As conjecture tells that on many occasions, such a training is imparted as compliance of directives from regulatory bodies like RBI and hence the management busy with mainstream banking finds little time and resources for neat planning of such training.

(3) This scenario is a product of plethora of tricky issues impacting Banks’ training on IT security, like (i) What exactly could be the coverage, (ii) Whether & how these contents should vary with the roles and responsibilities, (iii) Approach of delivery depending on rungs of organization hierarchy, (iv) Splitting of training in multiple modules, (v) Various training methodologies and their relative merits & demerits.

(4) Besides, there are some compounding factors like moving targets of training need analysis, frequent transfers of staff, degree of automation having its impact on the training coverage, advances on technological, administrative and procedural fronts that demand review and renewal of the course contents, interdependence and linkage with other business partners – peers, contractors, service providers, – and their automation levels, etc.

(5) To make the things harder, there are no convenient thumb-rules to calibrate precise training efforts in this nascent area
of IT security. While there are resources throwing light on the training in general, the domain specifics about IT security training for Indian banks are not so common.

(6) Again there is a broad spectrum of variables affecting the security training. Such variables are: IT sophistication, Tech awareness of staff, Work culture, Spread of branches, delivery channels like Tele-banking, ATM, Internet, etc.

(7) Last and significantly important point is the ever-changing scenario of innovative techniques of cyber-crime, new security hassles, fresh solutions brought into the marketplace, etc.

Research Objectives

3.3 Aim of the research is to assess how IT Security training is analysed, designed and implemented at present in Indian banks and to outline the modification to Training Need Assessment as also the Training Methodology, where necessary for such courses.

3.4 This was attempted by following the below-mentioned objectives:

(1) Finding out how e-Security training function is tackled by

   o Gauging the training needs, and

   o Planning out the Modules & Modalities of execution

   o Testing the current inputs for coverage & contents

(2) Tracing for similar efforts expended by the banks abroad
(3) Compilation & Review of already published facts & opinions

(4) Getting the views of Bank staff across all cadres

(5) Getting the views of associated parties, e.g. Service Providers like Tech. Vendors, Maintenance Agencies and associations like IBA, NIBM, etc.

(6) To trace the innovative e-Security threats & need for related awareness

(7) To compile all these factors that influence process of devising the training

(8) To formulate a tool for classification & attaching weights for such factors:
   - Generic inputs irrespective of the bank-specific paradigm
   - Specific inputs dependent on the individual bank’s set-up

(9) To build a model (if feasible) to transform above training needs into training strategy, if found feasible at the later stages of this research. Such a model will tackle
   - Macro aspects like number of modules with details for each module, viz. contents, time-gap & sequence between modules, Target audience, success-criterion, schedule & dilution for repetition
Micro aspects like Target quorum, delivery method, duration, conceptual / practical / on-the-job inputs, batch-size, courseware, Trainer qualities / criterion.

3.5 Based on above, a working Hypothesis is articulated as under, to guide this research:

**Hypothesis**

3.6 While the banks in India do impart training on IT Security to their staff, the clarity on interplay of all the factors influencing the training seems to be inadequate. Hence there is certain scope, to be explored, for some improvement in the way this training function is managed.

**Research Methods**

3.7 As the project intended to look into the present paradigm of the IT Security training, it was basically an exploratory study.

3.8 There is one school that says exploration is a full-fledged research, with purposes like diagnosing a situation, screening of various alternatives, and discovering new ideas.¹

3.9 Some others support a view that exploratory research is an initial phase of a research project and its scope is confined to gain better understanding of the situation so that further refinement of research problem is possible, leading to a clear and concise hypothesis.²
3.10 However, the research aimed at exploration, followed by suggestions about some methods (and possibly a model, too) to improvise upon the IT Security training function in Indian banks.

**Sample**

3.11 The population / universe considered for this research are those banks in India, which cater to the public with banking service. The criterion has excluded some banks for the reasons stated against them as follows:

- Banks that do not directly serve the members of public like Reserve Bank of India (RBI), Export Import Bank (EXIM), National Bank for Agri and Rural Development (NABARD), etc.
- Similarly, foreign banks are omitted for the reason, they are not Indian banks and their business share & staff strength in India is low compared to their overall volume; and their policy is formulated at HQ abroad, where the research won’t aim.
- Couple of banks have a very peculiar constitutional status of ‘private bank owned by a public sector bank, viz. SBI Commercial and International Bank, hence they are excluded.

3.12 The population therefore consisted of public sector banks (total count 27), private sector banks (total count 28), cooperative banks (total count 2104) and regional rural banks (total count 196). This universe of banks considered for research is presented here.
### Population / Universe of Indian Banks *

<table>
<thead>
<tr>
<th>A. Public Sector Banks</th>
<th>B. Private Sector Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1. Nationalized Banks</strong></td>
<td><strong>B1. Old Private Banks</strong></td>
</tr>
<tr>
<td>1 Allahabad Bank</td>
<td>1 Bharat Overseas Bank Ltd.</td>
</tr>
<tr>
<td>2 Andhra Bank</td>
<td>2 City Union Bank Ltd.</td>
</tr>
<tr>
<td>3 Bank of Baroda</td>
<td>3 Development Credit Bank Ltd.</td>
</tr>
<tr>
<td>4 Bank of India</td>
<td>4 Ing Vysya Bank Ltd.</td>
</tr>
<tr>
<td>5 Bank of Maharashtra</td>
<td>5 The Karnataka Bank Ltd.</td>
</tr>
<tr>
<td>6 Canara Bank</td>
<td>6 Lord Krishna Bank Ltd.</td>
</tr>
<tr>
<td>7 Central Bank of India</td>
<td>7 Nainital Bank Ltd.</td>
</tr>
<tr>
<td>8 Corporation Bank</td>
<td>8 Tamilnad Mercantile Bank Ltd.</td>
</tr>
<tr>
<td>9 Dena Bank</td>
<td>9 The Bank of Rajasthan Ltd.</td>
</tr>
<tr>
<td>10 Indian Bank</td>
<td>10 The Catholic Syrian Bank Ltd.</td>
</tr>
<tr>
<td>11 Indian Overseas Bank</td>
<td>11 The Dhanalakshmi Bank Ltd.</td>
</tr>
<tr>
<td>12 Oriental Bank of Commerce</td>
<td>12 The Federal Bank Ltd.</td>
</tr>
<tr>
<td>13 Punjab &amp; Sind Bank</td>
<td>13 Ganesh Bank of Kurnurdwad Ltd.</td>
</tr>
<tr>
<td>14 Punjab National Bank</td>
<td>14 Jammu &amp; Kashmir Bank Ltd.</td>
</tr>
<tr>
<td>15 Syndicate Bank</td>
<td>15 The Karur Vysya Bank Ltd.</td>
</tr>
<tr>
<td>16 UCO Bank</td>
<td>16 The Lakshmi Vilas Bank Ltd.</td>
</tr>
<tr>
<td>17 Union Bank of India</td>
<td>17 The Ratnakar Bank Ltd.</td>
</tr>
<tr>
<td>18 United Bank of India</td>
<td>18 The Sangli Bank Ltd.</td>
</tr>
<tr>
<td>19 Vijaya Bank</td>
<td>19 The South Indian Bank</td>
</tr>
<tr>
<td>1 State Bank of India</td>
<td>1 Bank of Punjab Ltd.</td>
</tr>
<tr>
<td><strong>State Bank Subsidiaries</strong></td>
<td></td>
</tr>
<tr>
<td>2 State Bank of B'k'n' &amp; Jaipur</td>
<td>2 Centurion Bank Ltd.</td>
</tr>
<tr>
<td>3 State Bank of Hyderabad</td>
<td>3 HDFC Bank Ltd.</td>
</tr>
<tr>
<td>4 State Bank of Indore</td>
<td>4 ICICI Bank Ltd.</td>
</tr>
<tr>
<td>5 State Bank of Mysore</td>
<td>5 IndusInd Bank Ltd.</td>
</tr>
<tr>
<td>6 State Bank of Patiala</td>
<td>6 Kotak Mahindra Bank Ltd.</td>
</tr>
<tr>
<td>7 State Bank of Saurashtra</td>
<td>7 UTI Bank Ltd.</td>
</tr>
<tr>
<td>8 State Bank of Travancore</td>
<td>8 YES Bank</td>
</tr>
</tbody>
</table>

*Coop. Banks (total 2104) and Regional Rural Banks (total 196) are not shown in above list, for reasons of high count, low business scale & low IT sophistication. Attention is also sought to notes in previous & next section.*
3.13 Hence the population consists of 27 Public Sector Banks (like say Bank of India, Dena Bank, etc.), 20 Old Private Banks (like say The Federal Bank Ltd., The Sangli Bank Ltd., etc.), 8 New Private Banks (like say ICICI Bank, UTI Bank, etc.), 196 Regional Rural Banks (like say Akola RRB, Thane RRB, etc.) and 2104 Coop Banks (like say Rupee Coop Bank, Cosmos Coop Bank, etc.)

3.14 Private sector banks – more or less, all of them – have extended computerization coverage to almost all their branches. As per directives of regulators like RBI, Central Vigilance Commission, etc. the public sector banks have also extended computerization coverage for more than 70% of their business. As contrasted to this, computerization in RRB’s & Coop banks is still lagging much behind with substantial scope for automation. This has resulted in drawing the sample from RRB’s and cooperative banks.

3.15 Another constraint faced is the massive exercise of mergers and consolidation of Regional Rural banks and Cooperative banks undergoing during currency of the research, under the auspices of the Finance Ministry, Govt. of India and the Reserve Bank of India. This has resulted in a din and turmoil impeding the sampling.

3.16 Marked dichotomy could also be traced when it comes to employees' computer literacy in these banks. Sources at RBI
indicate that new private banks have cent percent computer literacy, whereas PSU banks lagging considerably behind at 21.51% and old private banks exhibit marginally better at 34.03%.  

3.17 The choice of stratified sampling thus emerges clearly in view of the distinctive parameters of (i) business volume, (ii) staff strength, & (iii) degree of IT sophistication. Five different strata are shown below.

<table>
<thead>
<tr>
<th>Bank Strata</th>
<th>Business Volume</th>
<th>Staff Strength</th>
<th>Degree of IT Sophistication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector Banks</td>
<td>High</td>
<td>High</td>
<td>Mid-High</td>
</tr>
<tr>
<td>Old Private Banks</td>
<td>Mid</td>
<td>Mid-High</td>
<td>Mid-High</td>
</tr>
<tr>
<td>New Private Banks</td>
<td>Mid-High</td>
<td>Mid</td>
<td>High</td>
</tr>
<tr>
<td>Regional Rural Banks</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Cooperative Banks</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 3: Bank Strata – Business, Staff Strength & IT Sophistication

3.18 The above strata are broadly indicative, nonetheless, there are some notable exceptions in various classes, e.g. Cosmos Coop Bank has exemplary state-of-the-art IT deployment on par with any new generation private sector bank. Total sample size of about 20-25 banks was planned from this universe.
3.19 Before coming to actual sample, it would also be worth to mention about various sampling methods (like stratified method stated earlier) that have contributed in the sampling process. Stratified Sampling is already explained with strata of public sector banks, old private banks, new private banks, coop banks and RRB’s in different layers based on criterion of business scale, degree of automation, branch and staff strength. Quota Sampling is considered to the extent some real life constraints of interviews guided to resort to it, with quota used to get respondents from across a balanced spread of banks, thereby discarding a few potential respondents who were from nationalized banks, where quota had reached a threshold figure. Lastly, a multi-stage sampling has also contributed as the organizations (banks, in this case) are ultimately run by the persons and hence a careful balance was attempted for respondents observed inasmuch as the people from not just different banks but of multiple walks (IT or otherwise, senior / middle / junior, etc.) were targeted.

3.20 The final sample drawn based on above explanations comprised:

- Public Sector Banks
  - Allahabad Bank
  - Andhra Bank
  - Bank of Baroda
- Bank of India
- Bank of Maharashtra
- Canara Bank
- Corporation Bank
- Indian Overseas Bank
- Punjab National Bank
- State Bank of Hyderabad
- State Bank of India
- State Bank of Travancore
- Union Bank of India
- United Bank of India

- Old Private Banks
  - Bank of Rajasthan
  - Jammu & Kashmir Bank
  - Karnataka Bank
  - Karur Vysya Bank
  - Lord Krishna Bank
  - Tamilnad Mercantile Bank

- New Private Banks
  - HDFC Bank
  - UTI Bank
  - IDBI Bank
- Regional Rural Banks
  o Bilaspur Raipur Gramin Bank
  o Howrah Gramin Bank
  o Krishna Gramin Bank
  o South Malbar Gramin Bank

- Coop Banks
  o Anhyudaya Coop Bank
  o Cosmos Coop Bank
  o Rourkela Coop Bank
  o Surendranagar Coop Bank
  o Thane Janata Sahakari Bank
  o Vishveshwar Coop Bank

3.21 Based on various rubric parameters like bank constitution, bank size, technology sophistication as also the respondents’ functional portfolio, seniority, place of posting, etc., the sample could be viewed in several ways as follows:

- Respondent Banks (Category-wise %age representation)

<table>
<thead>
<tr>
<th></th>
<th>PSU</th>
<th>Old Pvt</th>
<th>New Pvt</th>
<th>RRB</th>
<th>Coop</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constitution</strong></td>
<td>14</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>%age</strong></td>
<td>42%</td>
<td>18%</td>
<td>10%</td>
<td>12%</td>
<td>18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Business Scale</strong></th>
<th>Low up to 100</th>
<th>Mid 100-1000</th>
<th>High 1000+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>%age</strong></td>
<td>36%</td>
<td>58%</td>
<td>6%</td>
</tr>
</tbody>
</table>
o Branch Network  Low  Mid  High
                1-1000  1000-5000  5000+
                70%  27%  3%

o IT Sophistication  Low  Mid  High
                22%  39%  39%

Research Methods (Contd)

3.22 On setting up the sample of about 33 Indian banks as above, the
next step of data collection was tackled as under.

➢ Sources of Data – This comprises (i) Senior / Top executives
looking after general management, (ii) Middle level
Executives heading functions of IT & HR / Corporate Training.

➢ Tools for Data Collection – They are questionnaires & depth-
interviews, as narrated below.
3.23 Drafting the Questionnaires targeted to the middle managers, in charge of
  ➢ Information Security
  ➢ Corporate Training

3.24 Structuring the depth-interviews addressed the senior / top managers, in charge of general management function.

3.25 Collecting the primary data through interviews & questionnaires sought aspects of
  ➢ Quantitative, like Count, Sum, Frequencies, Weights, etc.
  ➢ Qualitative like Perspective, Paradigm, Policy, Contents, etc.
  ➢ Quantification of abstract / conceptual data, wherever feasible

3.26 Secondary data on IT training will be scanned from books, websites, periodicals, e-Newsletters, etc. as stated in section on Literature Review.

3.27 The researcher has designed a model for IT security training, called IT STCM, (explained in chapter 8). For some aspects of this model, an independent opinion was sought from experts in the field of banking technology. These experts have endorsed the researcher’s design of parameters and related weightage.