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Evaluating State Bank Training Courses through the CIPP Model within Enterprise Architecture

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Abstract


Employee development is a strategic priority for organizations, yet the mere provision of training does not guarantee effectiveness. This study evaluates the effectiveness of in-service training programs at a state-owned bank using the Context, Input, Process, Product (CIPP) model within the framework of Enterprise Architecture (EA). Employing a descriptive-survey method with a practical orientation, data were collected from 82 employees who had participated in the training courses, selected via convenience sampling. A researcher-designed questionnaire assessed participants' perceptions across the four CIPP dimensions. Data analysis using descriptive statistics and one-sample t-tests revealed significantly negative perceptions regarding the context and input components, suggesting a misalignment with employee needs and inadequate resources. In contrast, the training process was positively evaluated. However, the product dimension indicated limited impact on employees' knowledge, skills, and career development. The findings underscore the need for strategic revision of the training programs to enhance their effectiveness and alignment with organizational objectives within the bank's EA.


Keywords: In-service training, Training effectiveness, CIPP model, Enterprise architecture, Human resource development.

1 | Introduction

In the context of today's dynamic and highly competitive business environment, organizations are compelled to continuously evolve in order to maintain their market position and ensure long-term sustainability. This process of evolution frequently requires a deliberate alignment between business strategies and technological infrastructures. However, such alignment often exposes discrepancies within information systems, leading to inefficiencies or fragmentation.

Enterprise Architecture (EA) has emerged as a strategic discipline aimed at addressing these challenges. It provides a structured and conceptual framework that facilitates the effective management of organizational change and complexity [1]. It provides a conceptual framework that employs various strategies to manage organizational change effectively [2]. Through the integration of various architectural layers—namely

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business, application, information, and technology—EA enables organizations to navigate transitions while maintaining focus on strategic objectives [3]. Despite being a relatively recent field, EA has gained increasing recognition for its potential to enhance organizational agility and coherence.

Integral to the successful implementation of EA is Human Resource Development (HRD), which plays a critical role in preparing and enabling the workforce to engage with and sustain enterprise-level change [4]. HRD encompasses activities such as training, professional development, and the strategic utilization of individual competencies [5]. In rapidly evolving organizational environments, employee adaptability becomes a key asset. This adaptability is cultivated through continuous and intentional development programs aligned with organizational goals. Research consistently demonstrates that organizations investing in structured HRD initiatives are better positioned to innovate, maintain high productivity levels, and deliver superior service outcomes [6]. Consequently, training and development are increasingly viewed not merely as supportive functions but as essential drivers of strategic success, particularly in contexts that require alignment between people, processes, and technology [7].

Given the strategic importance of HRD in supporting EA and broader organizational transformation, it becomes critical to not only implement development programs but also to assess their effectiveness systematically [8]. Training and development serve as key mechanisms for aligning employee capabilities with job demands, ultimately enhancing productivity and operational effectiveness [9]. However, the design and execution of such programs require substantial investments of time, resources, and managerial commitment. Consequently, organizations must rigorously evaluate whether these efforts yield measurable and meaningful outcomes [10]. Evaluation of training effectiveness typically involves examining the behavioral changes, performance improvements, and organizational contributions of participants [9]. This evaluative process allows firms to assess the quality and impact of development programs in terms of their content, instructional design, and alignment with strategic goals [8].

A range of well-established models exists for assessing training initiatives, each offering distinct perspectives and evaluative insights. Two dominant paradigms—goal-based and systems-based approaches—have shaped much of the literature on training evaluation. Among the goal-based models, Kirkpatrick and Kirkpatrick's [11] Four-Level model and Phillips' [12] Return on Investment (ROI) model are widely applied. In contrast, the Context, Input, Process, Product (CIPP) model, developed from a systems-oriented perspective, offers a more holistic framework for evaluating educational and training programs within complex organizational environments [13].

The CIPP evaluation model is particularly well-suited for assessing training programs within the banking sector, where the alignment of workforce competencies with organizational strategy is critical. Its comprehensive and systematic structure allows for an in-depth analysis of training program effectiveness and relevance, ensuring that educational initiatives are both purposeful and responsive to participant needs.

The context evaluation focuses on the objectives and needs of the training program, ensuring alignment with the strategic goals of the state bank. It involves assessing the demands of the banking sector and the specific needs of the bank's employees. This dimension helps in identifying the relevance of the training program to the bank's EA, ensuring that the training supports the bank's overall business objectives.

Input evaluation examines the resources, including instructors, curriculum, and infrastructure, necessary for the training program. It ensures that these inputs are adequate and aligned with the training objectives. In the context of EA, this evaluation helps in optimizing resource allocation and improving the IT ecosystem to support training initiatives.

Process evaluation plays a crucial role in program implementation. It monitors and evaluates instructional methods, program execution, and overall administration. This phase provides valuable feedback for improvement, identifying successful elements and addressing areas needing enhancement through observation and review.

Product evaluation assesses whether the training program achieved its objectives. This includes both immediate results, such as knowledge acquisition and behavioral change, and longer-term impacts on organizational performance. It enables stakeholders to ascertain the program's success and its effects [14]-[16].

Given the importance of aligning training programs with strategic organizational goals, particularly within sectors such as banking, there is a need for systematic evaluation of training effectiveness. The CIPP model offers a robust framework of such assessment, encompassing CIPP dimensions. Applying this model enables organizations to assess not only the design and delivery of training programs but also their alignment with EA and long-term strategic outcomes. In this study, the CIPP model is employed to evaluate employees' perceptions of in-service training courses offered by the bank. The following research questions guide the inquiry:

- I. To what extent is the mean employee perception of the context and organizational environment of the in-service training courses at the bank significantly different from a predetermined reference point?
- II. To what extent is the mean employee perception of the educational inputs (e.g., resources, materials, instructors) of the in-service training courses significantly different from a predetermined reference point?
- III. To what extent is the mean employee evaluation of the training process (i.e., teaching-learning activities) of the in-service training courses significantly different from a predetermined reference point?
- IV. To what extent is the mean employee perception of the outcomes of the in-service training courses (Changes in knowledge, skills, and attitudes) significantly different from a predetermined reference point?

2 | Research Methodology

This study adopts an applied research design with a descriptive-survey approach, aimed at evaluating the effectiveness of in-service training programs at a state-owned bank using the CIPP evaluation model within the framework of EA.

2.1 | Population and Sampling

The statistical population consisted of all employees working at branches of the bank in Tehran province. Using a convenience sampling method, 82 employees who had recently participated in in-service training programs were selected as the study sample. The sample included a diverse range of participants in terms of gender, age, educational background, and work experience, enhancing the generalizability of the results within the study context.

2.2 | Instrumentation

Data were collected using a researcher-developed questionnaire based on the four components of the CIPP model. The questionnaire comprised multiple items for each dimension— CIPP—using a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5).

To ensure content validity, the questionnaire was reviewed by a panel of five experts in the fields of educational planning, HRD, and EA. Based on their feedback, necessary modifications were made to improve clarity, relevance, and alignment with the research objectives.

For assessing the reliability of the instrument, Cronbach's Alpha was calculated for each of the four subscales.

The values obtained were as follows:

Table 1. Cronbach's Alpha coefficients for the CIPP questionnaire dimensions.

CIPP Dimension	Number of Items	Cronbach's Alpha (α)	Reliability Level
Context	9	0.81	Acceptable
Input	5	0.84	Good
Process	6	0.78	Acceptable
Product	6	0.86	High
Total scale	26	0.83	Good

2.3 | Data Collection and Analysis

Following administrative approval and informed consent from participants, the questionnaires were distributed and collected in person. Participation was voluntary, and responses were anonymized to ensure confidentiality and ethical compliance.

To analyze the data, descriptive statistics (Mean, standard deviation, range) were used to summarize participant responses. To test the research hypotheses, one-sample t-tests were conducted to determine whether the mean scores of each CIPP component significantly differed from a neutral reference value of 3, which was interpreted as the threshold for acceptable training effectiveness. A significance level of $\alpha = 0.05$ was adopted for all statistical tests.

Data analysis was performed using SPSS (Version 27). The results informed the interpretation of employee perceptions regarding the effectiveness of the bank's training programs in alignment with the strategic objectives outlined by its EA.

3 | Findings

This section presents the descriptive and inferential results derived from the responses of 82 participants who completed the CIPP-based questionnaire. The findings are organized according to the four components of the model: 1) context, 2) input, 3) process, and 4) product.

3.1 | Descriptive Characteristics of the Respondents

In the examined sample, a total of 82 individuals responded to the survey. Of these, 67 participants (81.7%) were male and 15 (18.3%) were female, indicating a predominantly male respondent base. In terms of age distribution, 45.1% ($n=37$) were between 41 and 50 years old, 43.9% ($n=36$) were aged 31 to 40, 8.5% ($n=7$) were in the 51 to 60 age range, and 2.4% ($n=2$) were between 25 and 30 years old.

Regarding educational attainment, 72.0% ($n=59$) held a master's degree, 18.3% ($n=15$) a bachelor's degree, and 9.8% ($n=8$) held a doctoral degree. As for work experience, 53.7% ($n=44$) of participants had between 11 and 20 years of experience, 34.1% ($n=28$) had more than 20 years, 8.5% ($n=7$) had 5 to 10 years, and 3.7% ($n=3$) had less than 5 years. Notably, over half of the participants had 11 to 20 years of professional experience.

A one-sample t-test was used to address the research questions. If the mean response for any variable exceeded a value of 3, the interpretation was that the participants evaluated that aspect of the training positively.

3.2 | Descriptive and Inferential Analysis Based on the CIPP Model

In this section, the research questions are addressed using data collected from the sample of 82 individuals via the distributed questionnaire.

Research question 1

To what extent is the mean employee perception of the context and organizational environment of the in-service training courses at the bank significantly different from a predetermined reference point?

The *Table 2* presents the mean scores, standard deviations, and range of responses for the items related to the fifth research question. Nine items were analyzed to assess the "Context" variable. The standard deviations for these items ranged from 1.036 to 1.505, indicating that individual item scores deviated from the mean by an average of 1.036 to 1.505 points. The range of scores for these items varied between 3 and 4, reflecting the difference between the highest and lowest values assigned.

A review of the item means for the "Context" variable reveals that items 1, 7, and 8 scored above the average, while others, such as items 4 and 5, scored at or slightly below the mean. This suggests variation in participants' perceptions of the training program's contextual elements.

Table 2. Measures of dispersion and central tendency for items related to research question one.

Variable	Item	Standard Deviation	Range	Mean
Context	The course objectives were aligned with my prior knowledge.	1.505	4	3.10
	The duration of the course was appropriate from my perspective.	1.107	4	2.44
	In my view, the course had measurable objectives.	1.218	4	2.64
	The course content matched my level of knowledge.	1.230	4	2.99
	The level of difficulty of the topics matched their allocated duration.	1.036	4	2.43
	The course content addressed some of my work-related needs.	1.562	4	2.90
	The presented content was simple and easy to understand.	1.206	3	3.09
	The training course was suitable for improving my professional skills.	1.470	4	3.16
	The presented content was engaging for me.	1.370	4	2.81

According to the table, the average response to the questions addressing the first research question is 2.8409, with a t-value of -1.305 and a significance level (P-value) of 0.196. Since this p-value is greater than the alpha level of 0.05, the research hypothesis (H1) is rejected ($p = 0.196 > 0.05$). This means that the participants in the training courses believe that the context and conditions provided during the training sessions at the bank were not appropriate.

Table 3. One-sample t-test results for research question one.

Variable	Sample Mean	Standard Deviation	Standard Error of the Mean	T-Value	Significance Level (P-Value)
context	2.8409	1.09727	0.12192	-1.305	0.196

Research question 2

To what extent is the mean employee perception of the educational inputs (e.g., resources, materials, instructors) of the in-service training courses significantly different from a predetermined reference point?

According to the *Table 4*, the mean values, standard deviations, and ranges for all items related to the second research question are presented. Five items were used to assess the input variable. The standard deviation values for these items range from 1.116 to 1.328, indicating that the respondents' scores on each item deviate, on average, between 1.116 and 1.328 points from the mean. The range of 4 suggests that the difference between the highest and lowest scores assigned to the input variable items is 4.

A review of the mean scores for the input items reveals that only the fifth item is close to the average, while the remaining items fall below the average.

Table 4. Measures of dispersion and central tendency for items related to research question two.

Variable	Item	Standard Deviation	Range	Mean
Input	The exercises and assignments in the course had a positive impact on my learning.	1.328	4	2.75
	The use of audiovisual content in the course had a positive impact on my learning.	1.164	4	2.72
	The in-class exercises and activities captured my attention.	1.323	4	2.78
	The use of audiovisual content in the course captured my attention.	1.116	4	2.68
	In my opinion, the use of audiovisual content made it easier for me to learn.	1.218	4	2.94

According to *Table 4*, the mean score of responses to the second research question is 2.7728, with a t-value of -1.837 and a significance level (P-value) of 0.070. Since this p-value is greater than the alpha level of 0.05, the research hypothesis (H1) is rejected ($0.05 < 0.070$). This means that, from the perspectives of trainees, instructors, and executive managers, the educational inputs prepared for the course were not appropriate.

Table 5. One-sample t-test results for research question two.

Variable	Sample Mean	Standard Deviation	Standard Error of the Mean	T-Value	Significance Level (P-Value)
Input	2.7728	1.1299	0.12367	-1.837	0.070

Research question 3

To what extent is the mean employee evaluation of the training process (i.e., teaching-learning activities) of the in-service training courses significantly different from a predetermined reference point?

The table below presents the mean values, standard deviations, and ranges for all items related to the third research question. To evaluate the process variable, 6 items were used. The standard deviation for the items related to the process variable ranged between 1.041 and 1.173, which indicates that each respondent's score on these items deviated from the mean by approximately 1.041 to 1.173 on average. The range of responses was 3 and 4, showing that the difference between the highest and lowest scores assigned to the process items was either 3 or 4.

A look at the mean scores of the process items reveals that only the first item is close to the average, while the remaining items have lower-than-average values.

Table 5. Measures of dispersion and central tendency for items related to research question three.

Variable	Item	Standard Deviation	Range	Mean
Process	In my opinion, the number of formative assessments conducted during the course was sufficient.	1.044	4	2.90
	I was assigned various tasks related to newly learned topics.	1.157	4	2.62
	The course curriculum was designed to encourage my active participation.	1.104	3	2.83
	During the course, adequate time was provided to resolve ambiguities and address questions.	1.041	3	2.64
	I completed sufficient exercises for new topics throughout the course.	1.129	4	2.78
	Group work activities were conducted during the course.	1.173	4	2.46

According to The *Table 6*, the mean score of responses related to the third research question is 2.7037, with a t-value of -2.920 and a significance level (P-value) of 0.005. Since this p-value is less than the alpha level of 0.05, the research hypothesis (H1) is confirmed ($0.005 < 0.05$).

This means that the participants in the training courses believe the educational process (Teaching-learning) in the bank's training programs was appropriate.

Table 6. One-sample t-test results for research question three.

Variable	Sample Mean	Standard Deviation	Standard Error of the Mean	T-Value	Significance Level (P-Value)
Process	2.7037	0.91325	0.10147	-2.920	0.005

Research question four

To what extent is the mean employee perception of the outcomes of the in-service training courses (Changes in knowledge, skills, and attitudes) significantly different from a predetermined reference point?

The *Table 8* presents the mean, standard deviation, and range of all items related to the fourth research question. To assess the output variable, 6 items were used. The standard deviation for the items related to the output variable ranged between 1.000 and 1.275, indicating that each respondent's item scores deviated, on average, between 1.000 and 1.275 from the mean.

The range of variation was 3 to 4, meaning that the difference between the highest and lowest scores assigned to the items of the output variable was 3 to 4. Looking at the mean scores of the output items shows that items 1, 5, and 6 are close to the average, while the other items have lower-than-average scores.

Table 7. Measures of dispersion and central tendency for items related to research question four.

Variable	Item	Standard Deviation	Range	Mean
Product	My knowledge increased after completing the course.	1.000	3	3.11
	The assignments and activities I completed during the course had a positive impact on my knowledge and professional skills.	1.142	4	2.65
	This course helped me develop a habit of group study.	1.217	4	2.77
	I was satisfied with my progress during the course.	1.227	4	2.72
	This training course was aligned with my personal interests.	1.275	4	3.02
	The course fulfilled part of my individual needs.	1.164	4	2.91

According to the table, it can be observed that the average response to the research question number four is 2.8642, the t-value is -1.145, and the significance level is 0.256. Since this value is greater than the alpha level at a 0.05 error rate, the statistical hypothesis of the research (H1) is rejected ($P=0.256>0.05$). This means that participants in the training courses (Learners, instructors, and executive managers) believe that the training output of the bank's courses has not been adequate.

Table 8. One-sample t-test results for research question four.

Variable	Sample Mean	Standard Deviation	Standard Error of the Mean	T-Value	Significance Level (P-Value)
Product	2.8642	0.6755	0.11862	-1.145	0.256

4 | Discussion

The first research question examines the context component of the CIPP model. It aims to identify environmental conditions and the target group and assess their needs. It also seeks to uncover barriers to meeting those needs and determine if the goals and priorities align with the identified needs. Regarding the bank's training courses, the surveys revealed that the setting and situation during the training were inadequate. This may indicate that the bank's staff feel the on-the-job training does not adequately meet their needs and interests, and that the training goals do not address what they require. Staff may resist changes if they perceive the training as irrelevant to their daily work [17]. This can create a negative atmosphere for training and diminish staff enthusiasm to participate.

Al-Sharjabi and Al-Mrasbi [18] in their study found that the strengths of the context component of the CIPP model were a clear and achievable vision, mission, and goals. The goals of the program met the needs of the community, the market, and the students, and received approval from the Ministry of Education. Additionally, aspects such as ease of access, course hours, class duration, number of classes, and locations were regarded positively by staff participating in the program.

The second question investigates what is needed to implement the training courses. This includes resources such as funding, tools, personnel, trainers, and learning materials. Evaluating the input component ensures the program possesses all necessary resources and utilizes them effectively. It also examines whether additional resources are required or if existing resources can be better leveraged to achieve desired outcomes. This study shows that students, teachers, and administrators felt the course lacked sufficient resources, including skilled teachers, adequate facilities and equipment, funding for learning and research, relevant curriculum, and a conducive learning environment—all factors that can enhance satisfaction with training programs [19].

The third question focuses on the execution of the training courses. The process component assesses how the training program's activities are conducted and how well they align with the training objectives. Essentially, the process encompasses all activities occurring during the program's implementation. Evaluating the process helps identify both strengths and weaknesses in program execution and measures overall effectiveness. The research indicated that participants in the training courses viewed the teaching and learning process at the bank positively. This suggests that the training courses are functioning well and achieving their objectives; resources are being utilized effectively, and problems are being swiftly addressed.

Agustina and Mukhtaruddin [20] argue that a well-functioning process component fosters good communication and teamwork among the participants and groups involved in the program or project. It also cultivates an environment where individuals seek continuous improvement and learning, thus ensuring readiness to make necessary adjustments to ensure the program's success. Furthermore, some researchers [21] highlight that the activities during the program can enhance and expedite the effectiveness of the process component. For instance, learner-focused activities help participants improve their problem-solving skills, facilitate discussions, and enhance their information-sharing and communication abilities.

The fourth question specifically targets the product component of the CIPP model. This stage aims to evaluate the outcomes of the program or intervention. Here, the evaluator assesses how well the program met its objectives and if these results are valuable, relevant, and sustainable. This involves collecting and analyzing data on the program's outputs and outcomes, such as changes in knowledge, skills, behavior, attitudes, or other key indicators. Survey findings indicated that the bank's training courses did not yield satisfactory outputs. This suggests that the training program may not be fulfilling its goals or that there may be unforeseen negative impacts requiring rectification. It's important to note that evaluation goes beyond identifying deficiencies; it also involves recognizing strengths and successes.

Therefore, even if the product component is underperforming, it does not necessarily imply that the entire program has failed. Al-Sharjabi and Al-Mrasbi [18], in their study on MBA courses, pointed out that the strong points of the product evaluation in the CIPP model include graduates with the right skills who find better

chances to advance their careers and use much of what they learned in training in their daily work. Ramly [22] also concludes that evaluating the product component of the CIPP model demonstrates that holding training courses has ignited a strong motivation to improve performance and alter employees' attitudes and behaviors towards their work responsibilities, resulting in the application of their learning in daily life.

To conclude, this study examined the in-service training courses of a state-owned bank using the CIPP model. The results indicated that the context component fell short, meaning the training goals and settings did not align well with what employees needed and wanted. The input aspect also did not meet expectations, with participants in the courses stating that there were insufficient resources, facilities, or qualified trainers. Conversely, the process component received positive feedback, suggesting that the training activities were executed well and aligned with the courses' objectives. However, regarding the product component, the courses did not significantly enhance employees' knowledge, skills, or attitudes. These findings clearly indicate that the bank needs to reevaluate its training approach. It should ensure that its training better aligns with organizational needs, allocate resources appropriately, and build on successful aspects of course delivery to achieve improved results.

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