

Draft Concept Paper
on
Study of Existing Budgeting and Costing System
and
Proposal for Outcome Budgeting & Integrated Cost
Accounting Architecture
in line with IR Budget Announcement of 2015-16



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Executive Summary

1. The Hon'ble Minister of Railways in the Budget speech Rail Budget 2015-16 stated as under:

“We have limited resources and thus must ensure that all public expenditure results in an optimal outcome. We, therefore, intend to set up a working group to modify the present system of accounting, to ensure tracking of expenditure to desired outcomes. The data on costing would be available online including costs incurred on constructing, augmenting, maintaining and operating railway lines. This would also help in undertaking post asset commissioning evaluation studies.”

2. In pursuance of the above objectives, Accounting Research Foundation of Institute of Chartered Accountants of India (ICAI ARF) has conducted a preliminary study of the existing Financial Accounting, Costing, Budgeting, IT and other related systems at various field units of Northern Railway located in and around Delhi. In addition, ICAI ARF held several rounds of discussions with Indian Railways (IR) officials with a view to identifying gaps in the existing system in reference to the proposed modified system. The salient points of conceptual framework of the proposed modified cost accounting system envisaged in the budget announcement are detailed in the following paras:

A paradigm shift is required to move budgeting process from decision on inputs to decision on outputs and outcomes. There is a pressing need to review the present accounting system with a view to upgrade, capacitate, automate and if required, to overhaul it in order to achieve the following objectives:

- (a) Up gradation of existing Costing system and related procedures to ensure “On Line” availability of relevant cost data in key performance areas like Construction, Operations, Maintenance, Capacity Augmentation, and Post Asset Commissioning evaluation, etc.
- (b) Linking and Tracking of expenditure incurred by Railway units, under various revenue and capital heads of accounts with the desired outcomes to be specified during budget formulation in quantified terms (ETKM, GTKM, NTKM, PKM and Revenue in rupee) for Responsibility accounting and management control.
- (c) Ensure availability of cost data considered necessary for costing/ pricing of Rail transport services, section and route-wise across IR network and ascertain profitability of respective Lines of Business (i.e. Passenger, Freight and Parcel etc).
- (d) Availability of managerially useful data considered essential for taking operational and financial decisions.

3. In order to achieve the above objectives, it is essential to have in place an integrated accounting system which has the following elements as an integral part:

- (a) **Accrual based Accounting:** The existing system of accounting in IR is cash based with some features of accrual accounting (such as demand recoverable and demand payable). In order to compile accounts as per Generally Accepted Accounting Principles(GAAP), it is imperative to generate additional set of accounts based on accrual accounting in addition to the present set of Government Accounts.This will improve the quality of financial reporting of IR'S financial position and operational results for the benefits of various stakeholders.Financials based on accrual accounting shall enable informed decision making within IR. Needless to mention cost accounts compiled from accrual based Financial accounts shall be accurate and complete.
- (b) **Performance Costing:** There is an urgent need to examine the IR operations creatively with an eagle eye to distill savings through effective Budgeting and prudent expenditure management. The existing costing system which is concentrated largely at Zonal Railway level needs to be extended to Field activity centers(cost centers) of Division and Workshop where bulk of resources get expended. The monthly cost of these Activity units contributing in rail operation and infrastructure maintenance shall be correlated to measurable output(Per sq meter of Plinth area maintained, Per ETKM, Per GTKM,Per Equated signal, Per Loco/coach/wagon etc.) of these field units . A Comparison of unit cost of similar activity centers will lead to identification of high cost activity centers. Such high cost centers which emerge as object of cost control will then be subjected to cost dissection and zero based review. This would finally result into identification of controllable and non controllable cost elements and related remedial action in the form of accountability for cost curtailment.The rationalized cost of field activity center shall generate feed forward data for formulation of budget and related outcome for ensuing budget year.
- (c) **Outcome Budgeting:** The existing budget system, although, involves proper checks and validations at various levels relies heavily on expenditure figures of previous years which are then incremented as per the revised requirements in the next year. The present system consists of comparison of expenditure incurred viz-a-viz budget estimates/allotment without estimating the final outcome expected to be achieved. The present system needs to be based on realistically rationalized cost of activity centers which can be worked out after an elaborate exercise of Activity Based Unit Costing (ABUC).

Under ABUC cost of activity centers are required to be related to physical outputs to arrive at per unit cost of service provided/output delivered. High cost activity units shall be subjected to a zero based review. Cost control targets in respect of controllable costs of activity center so identified can be fixed along with outcomes for the ensuing



budget. The outcomes as related to budget of activity can be in the form of operational improvements or elimination of operational constraints and technical restrictions (increase in average speed of train, removal of Speed restrictions, higher freight loading from a good shed and reduced detention time of a rake) which pull down the productivity of rail operations. In the process the non-value adding, infructuous costs, wastages and systemic inefficiencies can be identified for elimination in a planned way. However, to ensure accountability and responsibility accounting, it is imperative that outcome relating to budgeted spending are as far as possible expressed in numerical and quantified terms. An illustrative table is appended below which links budget proposal and expected outcomes:

S. No	Activity for which Budget is asked	Estimated Cost (Rs. in lacs)	Outcome
1	Earthing of signals to reduce the incidences of failure due to frequent lightning (in nos.)	30	<ul style="list-style-type: none"> ▪ Substantially reduced rate of signal failure in the section from X to X-A ▪ Enhanced throughput of section in terms of GTKM and NTKM of freight trains, ▪ Increased coach kilometres / Passenger kilometres for passenger (PKM) trains ▪ Saving monetized in Rs ...lacs per month
2	Fitment of fuel efficiency kit in diesel locomotives (in nos.)	45 lacs per kit	<ul style="list-style-type: none"> ▪ Improved specific fuel consumption from F to F- A ▪ Saving of HSD oil in liters per month ▪ Saving monetized in Rs ...lacs per month
3	Development of Goods shed with state of the art facilities	50	<ul style="list-style-type: none"> • Reduced detention of rake from X to X-A • Enhanced loading in tons • Freight revenue expected to be increased by Rs.... lacs per month
4	Platform extension	42	<ul style="list-style-type: none"> • Increase in originating Passengers in no • Revenue expected to be increased by Rs....lacs per month
5	Road Over Bridge (ROB)/ Road Under Bridge (RUB) - Removal of LC gates	200	<ul style="list-style-type: none"> • Elimination of accident at LC gates. • Increase in maximum train speed. • Reduction in train detention. • Increase throughput. • Increased GTKM, NTKM & CKM and

			<ul style="list-style-type: none"> • Enhanced Traffic Earnings • Revenue expected to be increased by Rslacs per month
6	New chord line	1220	<ul style="list-style-type: none"> • Increase in originating Passengers in numbers • Revenue expected to be increased by Rslacs per month
7	Improved Platform lighting	Rs. 35 lacs	<ul style="list-style-type: none"> • Energy saving in units • Saving in Rs....lacs per month

4. The integrated modified accounting system purports to extend accounting from macro (divisions, workshops) to micro brasstack level i.e. Field activity centers. IR's operations are characterized by a team based exercise of collaborative coordination amongst various operational and technical branches which results in the end product i.e. transportation of Freight, Passenger and Parcel. IR's transport products consist primarily of Net Ton Kilometer (NTKM) and Passenger Kilometer (PKM). Production of these products involves use of fixed infrastructure (tracks, electrical overhead equipments (OHE) and signaling equipments) and rolling stock (wagon, coaches and Locos). Production of transport products takes place when the rolling stock moves from one station to another. The raw material used in output of railway products is the occupation of the running line measured in units of time (minutes and seconds) between stations and has an interesting characteristic, i.e. it cannot be stored for use later. If its use is not optimized in real time it is lost forever. Therefore the proposed costing system shall capture cost co-ordinates/parameters of various sub-systems, use operation research techniques and shall throw up cost analysis for informed decision making to optimize the use of Line capacity/resources.
5. As the bulk of the IR's resources are spent at the field level, Business wisdom entail extending envisaged Activity Based Unit Costing (ABUC) to the nerve centers of activities i.e. field unit as a cost center. The planned integrated accounting architecture shall connect budget of field units to costing, their output (cost per unit of service Output) and final outcome in quantifiable terms as a part of budget formulation. For effective enforcement of accountability at appropriate operating level, it is essential to have in place a system of reward and responsibility accounting. For smooth operation of proposed system, an independent agency i.e. internal audit branch or ABUC cell can be set up in each division and workshop to oversee correct formulation of outcomes and their realization, measurement and accountability.
- 6. Spin offs from Proposed modified system**
- Dynamic co-relation between Budget, Expenditure, Output and Outcome in railway operations.

- Activity Based Unit Costing (ABUC) for enabling cost control, Train, Section and Route costing and related and Profitability analysis.
- Availability of vital inputs in the form of measurable outputs and outcomes for formulation of budget and Responsibility Accounting for prudent expenditure management.
- Identification and tracking of high cost units for cost analysis and control.
- Zero Based Review of all existing activities which consume bulk of resources
- Creative innovations and value engineering for cost reductions.
- Availability of current and reliable data for decision making on investment in capacity creation and augmentation.
- Effective Productivity test and post asset commissioning evaluation.
- Optimal Resource Managements and organization wide kaizens, cost consciousness and good governance ethos.

7. Project Phases

It is proposed to undertake this project systematically in phases commencing from initial study to all-India rollout after validation of system logic and transactional accuracy through pilot implementation in one unit

Phase-I

- Detailed Study of the existing Budgeting and Cost Accounting System
- Assess the adequacy and efficiency of the existing costing system to generate the reports & data relevant for managerial decision making
- Review and analyze the basis of allocation and apportionment of joint expenditure as per the existing system
- Identify the limitations / gaps and suggest improvements with regard to availability of costing data

Phase- II

- Suggest suitable models for costing procedures for recording and collection of data.
- Suggest the design requirements of new outcome budgeting and costing system.
- Advise suitable model to enable the online availability of costing data.
- Advise suitable model for working out train costing, breakeven point, and profitability of trains, sections and routes.
- Advise suitable models for working out profitability for Lines of Business and Lines of Service.
- Suggest procedures for interface with existing computerized applications.
- Advise Cost Accounting framework
- Preparation of Cost Accounting Manual



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- Examination of all detailed heads of expenditures in reference to possible outcomes which can be expressed in following three modes:
 - i. Numerical and quantified targets of performance
 - ii. Partially Numerical and partially qualitative
 - iii. Qualitative

Phase- III

Under this phase Pilot Study at some selected Division and Workshop shall be conducted to test out the efficacy and substantiveness of the proposed designed system. A team for consisting of IR officials will be formed which will be assisted / supervised by outside consultants

Phase-IV

After successful completion of Pilot Study the newly designed system shall be rolled out on all-India Zonal Railway.

Phase-V

On all-India roll out an implementation feedback received from units shall be utilized for review and amendment in the new system. The changes / modifications required in the cost accounting manual will be carried out and a revised manual would be framed for future implementation.



Introduction

1. The Hon'ble Minister of Railways in para 88 of the Budget speech Rail Budget 2015-16 stated as under:

“We have limited resources and thus must ensure that all public expenditure results in an optimal outcome. We, therefore, intend to set up a working group to modify the present system of accounting, to ensure tracking of expenditure to desired outcomes. The data on costing would be available online including costs incurred on constructing, augmenting, maintaining and operating railway lines. This would also help in undertaking post asset commissioning evaluation studies.”

2. In pursuance of the above objectives, Accounting Research Foundation of Institute of Chartered Accountants of India (ICAI ARF) has prepared a broad conceptual framework for the proposed accounting system as envisaged in the Railway Budget 2015-16. A preliminary study of the existing Financial Accounting, Budgeting, Costing, IT and other related systems has been conducted by ICAI ARF at various field units of Northern Railway located in and around Delhi. In addition several rounds of discussions were held with Indian Railways (IR) Officials with a view to map out the gaps in the existing system in reference to the proposed modified system. The salient points of the conceptual framework of the proposed modified accounting system envisaged in the budget announcement are detailed in the following paras:
3. A paradigm shift is required to move budgeting process from decision on inputs to decision on outputs and outcomes. There is a pressing need to review the existing accounting system with a view to upgrade, capacitate, automate and if needed, to overhaul it in order to achieve the following:
 - A. Up gradation of existing Costing systems and related procedures to ensure “On Line” availability of relevant cost data in key performance areas like Construction, Operations, Maintenance, Capacity Augmentation, and Post Asset Commissioning evaluation, etc.
 - B. Linking and tracking of expenditure incurred by Railway units, under various revenue and capital heads of accounts with the desired outcomes to be specified during budget formulation in quantified terms (ETKM, GTKM, NTKM, PKM and Revenue/Savings in rupee) for Responsibility accounting and cost control management.
 - C. Ensure availability of cost data considered necessary for costing/ pricing of Rail transport services, section and route wise across IR network and ascertaining profitability of respective Lines of Business (i.e. Passenger, Freight and Parcel etc).



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- D. Availability of managerially useful data considered essential for taking operational and financial decisions.
4. Indian Railways (IR) operations are characterized as a collaborative and co-operative team exercise among various operational and technical branches resulting in the end product i.e. transportation of Freight, Passenger and Parcel. The interconnectedness among various functional branches requires a robust integrated Accounting and Budget management framework, in place, to accurately measure under utilisation of capacity and inefficiencies of field activities/operations in quantifiable terms. Hence, the need for an advanced IT enabled Accounting architecture which covers key performance areas of IR's operations for the purpose of Performance Costing, Outcome Budgeting and optimal utilisation of resources.
5. The team from ICAI ARF has broadly reviewed the Indian Railways Finance code Vol II, Manual of Statistical Instructions, other documents and information provided to them and has visited the following offices of IR and held meetings with Senior Officials of Indian Railways:
- Railway Board, Rail Bhawan
 - Senior Divisional Finance Manager, Delhi Division, Northern Railway, New Delhi
 - Traffic Accounts Office, Northern Railway, New Delhi
 - Traffic Costing Office, Northern Railway, New Delhi
 - Centre for Railway Information System (CRIS), New Delhi
 - SSE/Permanent Way, New Delhi
 - SSE/ Works, New Delhi
 - EMU Car Shed, Ghaziabad
 - Electric Loco Shed, Ghaziabad
 - Coach Care Depot (Washing Line & Coach Care Centre (Sick Line))- New Delhi & Hazrat Nizamuddin stations-
 - SSE/Signalling & Telecommunication (S&T), New Delhi and Hazrat Nizamuddin stations
 - General Stores Depot, Shakurbasti
6. The objective of the study is to have a holistic understanding of the existing Finance, cost accounting and budgetary systems in force. Further in the light of Budget announcements, concerted efforts have been made to conceptualise an integrated accounting architecture which can correlate input, output costing and outcome budgeting parameters of rail operations. The proposed system shall be Information Communication Technology (ICT) enabled to facilitate appropriate managerial, financial and operational decision making in all application areas of Railway business for cost control in most prudent manner.



7. It is imperative to have an elaborate Performance costing and management accounting system in place, which encompasses all major resource consuming field activities. The envisaged costing system termed as Activity Based Unit Costing (ABUC) shall be an integral part of the proposed integrated accounting architecture. ABUC shall cover all direct, indirect fields and allied activities under a detailed cost center framework with requisite functionalities for outcome based budgeting and responsibility accounting.



Study of Existing System

The Salient findings of the study are as under:

- A. Based on the analysis of financial results of IR in recent years, it is evident that IR is seemingly slipping into a financial bind on account of inadequate internal generation of resources for investment which may, in turn, be a result of low efficiency, low productivity and some sub-optimal investment decisions. It is absolutely essential that adequate financial resources are garnered quickly to reignite the investment engine. IR has to scout for every possibility of unlocking savings from the potential areas where the existing resources are being expended. Whereas it is worthwhile to harness non-conventional modes of financing such as FDI, PPP, Pension Fund, Multilateral Funding and Institutional financing that will entail higher accrual of revenue surplus to service debt liability for IR, there is also an urgent need to look inwardly at the whole gamut of organizational activities/rail operations which consume bulk of resources with a “Zero Base Lens”. This initiative of unleashing organization wide kaizens is expected to maximize return / financial mileage from the use of scarce resources in an objective, financially prudent and businesslike manner.
- B. IR operations and service delivery mechanism entail intense interaction between various operational and technical branches which result in transportation of Freight, Passenger and Parcel services. The uniqueness of IR operations is that many operating and technical decisions have definite financial and cost implications. At present there is no Integrated Performance Costing and Outcome Budgeting system which focuses and monitors cost coordinates in key Performance areas and allots budget on the basis of zero base review. Thus interdependence of operating processes impregnated with financial tonalities requires a robust IT based integrated management accounting and budget management framework to identify operating and systemic inefficiencies for appropriate remedial action by the concerned activity center.
- C. A review of financial data of IR reveals that substantial portion of resources (Material, Manpower and Finance) is consumed in the fields of Operations, Maintenance of Permanent Way (track), Bridges, Overhead equipment (electrification overhead wires), Stations, Service Buildings and other Fixed Infrastructure, Maintenance of Rolling stock (Locomotives, Coaches and Wagons), Fuel and Electrical energy besides other operational cum safety paraphernalia. The computation of important statistical parameters, metrics and cost analysis under the present system are being carried out at Zonal Railway (TCO office) level after consolidating the working expenses of various Divisions and Workshops. **There is an urgent need to extend the costing and cost control exercise to the field activity centers of Division and Workshop by treating each activity center as distinct cost center.**



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- D. **Accounting System-** IR, being a Department of Government of India, maintains its finance accounts in form and format mandated by Controller General of Accounts (CGA) and Comptroller & Auditor General of India (C&AG). The existing financial accounting system is primarily concentrated at the level of Railway Division Headquarters where major transactions take place. The source documents relating to transactions at field unit level are processed and summarized returns are sent to Division for accountal in the books of accounts. The present accounting system is Information Technology enabled (Prime and AFRES at some units and IPAS (CRIS supported) at other units).This cash based Government Accounting system has so far met the objectives of accurate accountal of Receipts and Payments, Appropriation accounts and compliance of Government budgeting requirements. For a better informed decision making within the organization as well as improved reporting of financial results to the concerned stakeholders, it is desirable that Annual Accounts of IR are also compiled based on Accrual system of Accounting as an additional set of accounts. Needless to mention that cost accounts compiled under accrual based system of accounting are accurate and complete.
- E. **Cost Accounting System-** At presentcost accounting is carried out under the concept of Traffic costing (Passenger, Freight, Sub-Urban and Other streams) at Traffic Costing Office (TCO) located in Zonal Headquarter of a Railway. The guiding principle of costing is full cost distribution after the unit's accounts are closed and capital and revenue accounts are drawn up by the Accounts Department. The compiling of statistical parameters, metrics and cost analysis is being carried out at TCO office after consolidating the working expenses of various Divisions and Workshops.Common and joint expenses are bifurcated and apportioned among Broad gauge, Metre gauge and Narrow gauge and then by services viz. EMU, passenger and Freight on the basis of performance factors and ratios based on survey/studies. The joint expenses apportionment algorithm being followedcurrently, were fixed decades back and require a fresh review.
- F. **Budgeting System-**Budgetary exercise in IR is spread throughout the year. Modifications to the budget allotments are made based on reviews conducted in the months of August, November- December and February. The existing budget formulation system, although, involves proper checks and validations at various levels, relies heavily on expenditure figures of previous years which are then incremented / decreased as per the revised requirements in the next year. The present system consists of comparison of expenditure incurred viz-a-viz budget estimates/allotment without estimating the final outcome (in the form of increase in throughput, higher GTKM, NTKM, PKM and revenue/saving in Rs.) expected to be achieved. This leads to following inadequacies/limitations:
- It does not account for the change and assumes that the expenses will incurred pretty much the same as they did before.



- The budget is not related to the type of work / activity being carried out at the ground level. For instance there may be certain non-value-adding activities which are being continued year after year without any scrutiny of current justification.
- There may be tendency to build slack into the budget in order to obtain higher budget allocation. Such over estimations may escape attention of IR budget managers.
- There is no incentive for reduction in costs as a result of developing new processes / creative ideas / technologies.
- The present system does not analyze the cost inefficiencies involved in the process/activities and the same is loaded on to the cost of services.

G. Existing major Computer Applications

- **Passenger Reservation System (PRS)** -The PRS Application CONCERT (Country-wide Network of Computerized Enhanced Reservation and Ticketing) is the world's largest online reservation application, developed and maintained by CRIS. CRIS plays the role of an outsourced application development partner, who not only develops the applications for various requirements of IR but also hosts and supports them during their production life span.
- **Unreserved Ticketing System (UTS)** –Unreserved tickets which offer no reserved seats or berths and are not specific to a particular train are sold through this system.
- **Control Office Application (COA)** - Train movements on the Indian Railways are controlled and monitored by the Control Rooms in each of the divisional/ area control offices in real time on Control Office Application
- **Freight Operations Information System (FOIS)**–FOIS is a complete management module to track and monitor the movement of freight trains handling the billing and revenue collections as well.
- **Integrated Coach Management System (ICMS)** - ICMS manages tracking of coaches for efficient deployment and ensuring their timely service and maintenance.
- **Integrated Payroll and Accounting System (IPAS)**- IPAS manages the data of employees and accounts of Indian Railways.
- **Material Management Information System (MMIS)**- Material Manager Information System for managing procurement of material, their storage and inventory details.

- **PRIME** –Pay Roll and Independent Modules for HR Management.
- **AFRES** – Advanced Financial and Railway Expenditure Management system for accounting information and Management.
- **WISE** – Workshop Management System for supporting decision making in workshop activities.
- **Track Management System TMS** – to maximise the benefits of inputs (material equipment and manpower) made to track and to optimize the utilization of these assets.
- **CMS** – Crew Management System for managing the crew for train operation on the IR Network.

H. Limitations of Present Accounting Systems

- The costing reports are available after lapse of one year.
- The basis of apportionment of joint cost which were fixed decades back need review and updation.
- The accounts are not on accrual basis and hence costing data is not complete.
- The basis of costing is not variable cost to enable marginal costing.
- The system does not entirely address the issue of systemic and operating inefficiencies.
- The system does not analyze the cost inefficiencies involved in the process/activities and the same are loaded on to the cost of services and does not help the cause of Dynamic price fixation.
- The system assumes that all current activities and costs are still needed without examining them in detail and thus does not account for change.
- The system compares expenditure incurred viz-a-viz budget estimates/allotment in a mechanical manner without actually focussing on the final outcome to be achieved.
- The systems at CRIS are working on different IT platforms and are not integrated to ensure effective internal control for better informed decision making by taking a holistic view.

Proposed Modified Cost Accounting System

- A. Across the world, Accounting systems are undergoing a change with a shift from “Cash based Accounting” to “Accrual based Accounting”. In line with the trend, IR has embarked upon an initiative of finalizing a major Accounting Reforms Project. In order to provide a comprehensive and holistic picture of financials, it is imperative that Accrual based accounts are also generated as an additional set of accounts by IR for the benefit of various stakeholders. Financial statements compiled on accrual system of accounting shall show up useful financial data for informed decision making within IR. Accrual based budgeting shifts budgeting from cash flows (money received and payments made) to revenues earned and liabilities incurred. The accrual basis would align costing, budgeting and financial reporting logically as being on the same accounting basis. Needless to mention that the set of Accounts compiled on accrual basis of accounting are more suitable for ABUC and Outcome Budgeting. The existing chart of accounts would be suitably amended to ensure recording of accrual accounts and cost information/data.
- B. In the existing system, the vital exercise of zero base review during budget formulation stage is conspicuous by absence where all expenditures must be justified for the following year by just explaining the incremental amounts required over and above the current year. The major differences between present system and Zero based budgeting are:

Present Budgeting system	Zero based budgeting
Emphasis is on “How much”	Emphasis is on “Why”
Focus is on “increase” or “decrease” in expenditure	Focus is on “cost benefit” analysis
Past is taken for granted and never questioned for continuation	Past is questioned and justification needed for continuation and fund allocation
Activity is carried on the same basis as in the past	Exploration of alternative ways to carry out the activity
No cost benefit analysis of the activity	Cost and benefit analysis of each activity will be carried out

As Budget formulation is an important tool of financial planning and control, it is essential that Budget proposals under Revenue and Capital Expenditure Head are framed objectively after a Zero Based Review. The proposed system shall have Zero base review as an integral part of it where-in there will be need to justify as to how budgeting allocation will help in achieving the desired goal. Zero based reviews as a

vital ingredient of proposed integrated framework will achieve the following objectives:

- Gaining accurate view on linkages between proposed expenses and expected results in terms of outcomes.
- Identifying possible cost savings and non value-adding activities.
- Identification and prioritization of activities for value enhancement.
- Cost reduction on a continuous and sustainable basis.
- Emphasis on value-adding activities & consequently facilitate streamlining of processes.

Zero-based budgetary review will help in achieving an optimal allocation of resources where they are most needed. Executives will be required to justify every activity in their department. All unjustifiable expenditures shall be identified and can be discontinued. A questioning exercise such as the following will help in attaining genuine and effective budget control:

- Is the activity really necessary at all?
- What happens if the activity ceases?
- Is the current level of budget provision high?
- What other ways are there of carrying out the activity?
- How much should the activity cost?
- Do the benefits to be gained from the activity match the costs?

Thus zero base review as a part of budget process will result in improving the “Effectiveness” and “Efficiency” of all the related processes in rail operations. The Outcome Budget is expected to ensure efficient service delivery, transparency and accountability. Efficiency will essentially focus on minimizing waste in the production of services being rendered in rail operations.

C. Outcome Budgeting the game changer

As bulk of the resources are spent at field levels, it is imperative that the Performance costing and management accounting system (i.e. ABUC) is also extended to these very nerve centre of activities i.e. field unit as a cost center. Therefore it is desirable to have in place an integrated framework of accounting arrangement which connects budget of field units to costing (cost per unit of service Output) and final outcome. There is a need for a system of planning, budgeting and evaluation that emphasizes the relationship between money budgeted and outcome expected. This should also include narrative descriptions of each program or activity—that is, it organize the budget into quantitative estimates of costs and accomplishments and focus on measuring and evaluating outcomes. It should eventually aim to improve effectiveness and efficiency of public expenditure, by linking performance information (indicators, evaluations,



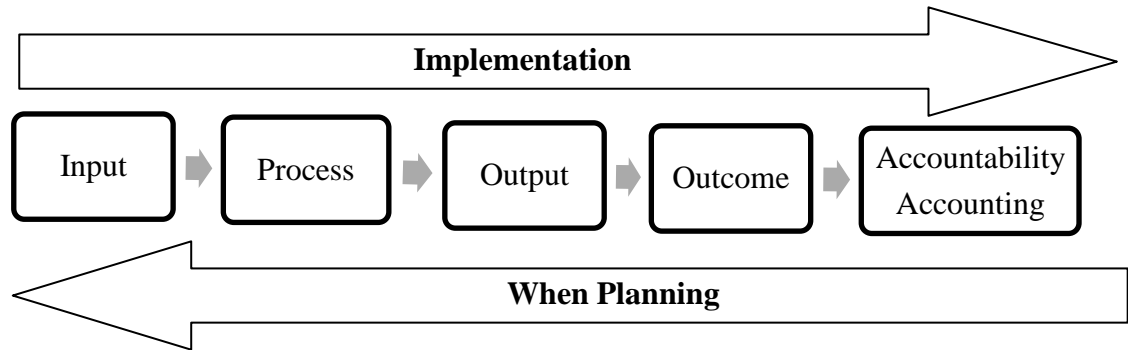
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program costings, etc.)to the results delivered. Outcomes are the intended impacts of outputs of various activity centers on Railway operations.

The need for optimum utilization of scarce resources makes it essential to have a well calibrated programme of Cost Control in conjunction with appropriate Budget Management Tools of Performance costing like ABUC. The ABUC process entails a thorough comparison of the cost per unit of service output of similar field activity units of a division or workshop. The Field units with unusually high on consumption of resources shall thereafter be subjected to critical zero base review and cost dissection, to identify target areas of controllable expenditure. This analysis shall become basis for making appropriate modifications in next year’s budget as a target outcome for that unit. For instance if in a Division the cost per Kilometer of track maintained by 15 nos. of SSE/P.Way varies From Rs 80 to Rs 190 per equated track kilometer. The cost sheet of all SSE/P.Way with maintenance cost over Rs 120 (Average cost per unit for a Division) shall be subjected to Zero base review and cost analysis. As a result, the identified areas of high cost shall be targeted for cost control. Thus Outcome Budgeting shall play a major role in managing operations efficiently and utilizing resources optimally as depicted in figure below:

Outcome Based Budgeting Logic Model



The Budget proposal should be relatable to cost metrics from ABUC. ABUC shall be an integral part of the proposed outcome budgeting accounting architecture will pave the way for an integrated accounting framework, connecting various facets of financial transaction with various sub-heads of accounting and facilitate desired outcome. The proposed arrangements shall require maintaining of granular accounting data at field level, co-relating expenditure with measureable outputs. ABUC shall provide vital inputs in the form of measurable outcome for formulation of economised budget and ensure identification and tracking of high cost units for Zero based budgeting and cost control. ABUC will also help in determining efficiency in utilization of assets. A sample list of physical parameters of output of an activity centeris furnished in **Annexure III** enclosed.

The Outcome Budget will help gauge the effectiveness of the money spent on various heads. It will also help ensure that budget provisions do not continue indefinitely without an independent and in-depth evaluation. This will help IR examine the expenditure before it is made, instead of doing a post-expenditure inspection. So at the very stage of planning, there will be a mechanism of checks and balances. This will result in reducing unnecessary expenses.

D. The concept of outcome budgeting shall cover all cost centers pertaining to revenue expenditure (working expenditure from Demand No.1 to Demand No. 12) as well as capital expenditure (Demand No. 16).

E. Information Technology, ABUC and Outcome Budgeting

Information Communication Technology (ICT) will play an important role in the proposed system to ensure that the existing and proposed applications/ systems are integrated and interfaced to enable online transfer/ sharing of data between the applications/ systems. An ICT enabled ABUC shall help the cause of timely availability of costing data in key performance areas and shall also facilitate train costing.

F. The proposed integrated architecture of ABUC and Outcome budgeting shall include a scheme of reward and accountability in reference to realization of Outcome budgeting targets. Outcome in numerical and quantitative would be vetted by Internal Audit Branch / independent auditors. Some examples of budget proposals and related outcome are furnished in **Annexure I & II** enclosed. Cases of outcome realization shall be recognized and rewarded and for other cases accountability shall be enforced for non and under performance.

G. The proposed integrated ABUC cum outcome budget shall have relevant interfaces with existing IT applications like FOIS, PRS, UTS, WISE, CMS, TMS, and IRPSM being run by CRIS.



Mechanics of Activity Based Unit Costing (ABUC)

The major steps involved in the road map for implementation of in ABUC are as under:

Step	Description
1	Identify Activity beats as cost centers
2	Identify various activities under the cost centers
3	Define activity Drivers i.e. measurable output/service units provided by cost center
4	Identify interface with computerized applications for service output
5	Identify Direct costs i.e., Direct labour, Direct Materials, etc.
6	Identify Indirect costs i.e., operational overheads, office and administrative overheads, central overheads, etc.
7	Select cost allocation basis/algorithm to be used for overhead cost i.e. Kilometre maintained, square metre of area maintained, GTKM, etc.
8	Compute total cost and rate per unit of output (service rendered)
9	Compare unit cost and identify high cost activity units
10	Identify cost curtailment target and related outcome
11	Outcome in numerical and quantitative terms as vetted by Internal Audit Branch to be included in Budget formulation.

The process of costing and costing control under ABUC in narrative terms shall be carried out as follows:

- A. Field activity centers pertaining to operations and fixed infrastructure shall be designated as “direct cost center”. The railway office units pertaining to office, administration and welfare activities which contribute indirectly to transportation shall be designated as “indirect cost center”. The differentiation of cost centers into “direct” and “indirect” shall facilitate proper cost analysis for cost control and expenditure management.

Direct costs can be defined as costs which can be directly assigned to activities relatively easily with a high level of accuracy. Cost object may be a product, a department, a project, etc. A particular cost may be direct cost for one cost object but indirect cost for another cost object. Most direct costs are variable but this may not always be the case.

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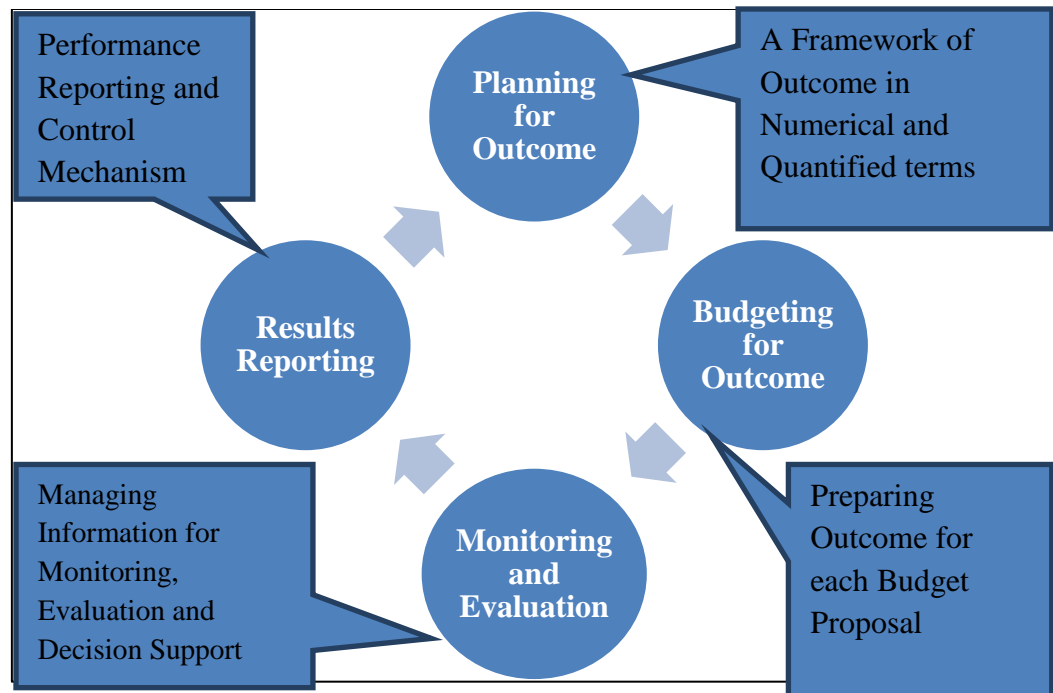
Indirect Costs are those costs whose precise benefits cannot be accurately attributed to specific cost objects. These typically benefit multiple cost objects and it is impracticable to accurately trace them to individual products, activities or departments etc. Indirect costs may be operational overheads, office and administrative overheads, central overheads, etc.

- B. The cash based monthly accounts shall be upgraded into accrual based accounts, as the cost accounts sourced from accrual based accounts are more accurate and complete. The financial accounts of a Railway Division so compiled on accrual accounting shall be reconfigured into a set of cost accounts. The cost accounts so reconfigured shall comprise cost center (field activity center) and element of cost wise. These cost accounts shall have details of expenditure in terms of direct, indirect, fixed and variable component separately for the purpose of marginal costing, variance analysis and detailed cost analysis.
- C. The cost for each field unit shall be related to measurable output/s (service output) like track Kilometer maintained, square metre of area maintained, GTKM earned, etc. The scheme of measurable outcome for each Field activity center shall be framed in consultation with concerned executive and Internal Audit Branch. An Illustrative table is appended below which links budget proposal and expected outcomes:

S. No.	Activity for which Budget is asked	Estimated Cost (Rs. in lacs)	Outcome
1	Earthing of signals to reduce the incidences of failure due to frequent lightning (in nos.)	30	<ul style="list-style-type: none"> ▪ Substantially reduced rate of signal failure in the section from X to X-A ▪ Enhanced throughput of section in terms of GTKM and NTKM of freight trains, ▪ Increased coach kilometres / Passenger kilometres for passenger(PKM) trains ▪ Saving monetized in Rs ...lacs per month
2	Fitment of fuel efficiency kit in diesel locomotives (in nos.)	45 lacs per kit	<ul style="list-style-type: none"> ▪ Improved specific fuel consumption from F to F- A ▪ Saving of HSD oil in liters per month ▪ Saving monetized in Rs ...lacs per month
3	Development of Goods shed with state of the art facilities	50	<ul style="list-style-type: none"> • Reduced detention of rake from X to X-A • Enhanced loading in tons • Freight revenue expected to be increased by Rs.... lacs per month
4	Platform extension	42	<ul style="list-style-type: none"> • Increase in originating Passengers in numbers

			<ul style="list-style-type: none"> • Revenue expected to be increased by Rs....lacs per month
5	Road Over Bridge (ROB)/ Road Under Bridge (RUB) - Removal of LC gates	200	<ul style="list-style-type: none"> • Elimination of accident at LC gates. • Increase in maximum train speed. • Reduction in train detention. • Increase throughput. • Increased GTKM, NTKM & CKM and • Enhanced Traffic Earnings • Revenue expected to be increased by Rslacs per month
6	New chord line	1220	<ul style="list-style-type: none"> • Increase in originating Passengers in numbers • Revenue expected to be increased by Rslacs per month
7	Improved Platform lighting	Rs. 35 lacs	<ul style="list-style-type: none"> • Energy saving in units • Saving in Rs....lacs per month

- D. Cost per unit of output for each cost center of a division shall be worked out and compared with similar units of a Division or Workshop. These yardsticks will also be used to check whether implementation has been “good” or “poor” by comparing them with the performance indicators.
- E. The high cost field unit shall be identified and shall be subjected to critical cost analysis dissecting those elements of cost which are responsible for high cost.
- F. Based on cost analysis, element of high costs shall be identified and reasons categorized into “controllable” and “uncontrollable”. In case the target /standard is found high the same shall be revised after proper analysis. This can be applied universally as well.
- G. Controllable high cost element (expenses) shall be identified after a conscious process of discussions and consultations. Next year budget shall be pruned incorporating cost control target as identified above. The realization of outcome targets shall be monitored through Responsibility Accounting Mechanism. As evident from figure below, this will be a continuous exercise till the budget and outcomes are properly aligned and all wasteful expenditure / activities are eliminated.



Outcome Budgeting Cycle

H. A sample of architecture of Outcome Budgeting exercise in respect of working Revenue Expenses and Capital Expenditure is enclosed in **Annexure I and II** respectively. A sample of the physical parameters for working out the cost per unit of activity under ABUC is given in **Annexure-III**. During designing phase all detailed heads of expenses shall be examined in reference to possible outcome which can be expressed in following three modes:

1. Numerical and quantified targets of performance
2. Partially Numerical and partially qualitative
3. Qualitative

At each Zonal Railway an ABUC cell will be set up under the administrative control of Divisional Railway Manager (DRM) / Chief Executive Officer (CEO) which will help in coordinating with the other concerned departments/ units in getting the required information/ data for a realistic estimate of the measurable outcome in quantitative terms.

In order to take the concept forward, it is essential that studies are undertaken for evolving a detailed design of the system. The detailed design parameters shall have approval of the Administrative Unit Incharge. The proposed detailed design shall include

all facets of the system and shall have intensive and extensive interfaces with the existing computerized applications.

After the finalization of detailed design of proposed system the same shall be tested and validated through a Pilot Study in one of the Indian Railway's Units. After one year of implementation, the results shall be analysed and system design shall be modified, if needed.



Project Scope

1. Comprehensive Study & Upgradation of the Budgeting and Costing System

Detailed study of the existing system of Budgeting and Costing in the IR and identify areas of improvements and provide suggestions to eliminate the limitations for upgradation of existing system in line with the Budget announcements 2015-16.

2. Project Phases

It is proposed to undertake this project systematically in phases commencing from initial study to all-India rollout after validation of system logic and transactional accuracy through pilot implementation in one unit

Phase-I

- Detailed Study of the existing Budgeting and Cost Accounting System
- Assess the adequacy and efficiency of the existing costing system to generate the reports & data relevant for managerial decision making
- Review and analyze the basis of allocation and apportionment of joint expenditure as per the existing system
- Identify the limitations / gaps and suggest improvements with regard to availability of costing data

Phase- II

- Suggest suitable models for costing procedures for recording and collection of data.
- Suggest the design requirements of new outcome budgeting and costing system.
- Advise suitable model to enable the online availability of costing data.
- Advise suitable model for working out train costing, breakeven point, and profitability of trains, sections and routes.
- Advise suitable models for working out profitability for Lines of Business and Lines of Service.
- Suggest procedures for interface with existing computerized applications.
- Advise Cost Accounting framework
- Preparation of Cost Accounting Manual
- Examination of all detailed heads of expenditures in reference to possible outcomes which can be expressed in following three modes:
 - iv. Numerical and quantified targets of performance
 - v. Partially Numerical and partially qualitative
 - vi. Qualitative



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Phase- III

Under this phase Pilot Study at some selected Division and Workshop shall be conducted to test out the efficacy and substantiveness of the proposed designed system. A team for consisting of IR officials will be formed which will be assisted / supervised by outside consultants

Phase-IV

After successful completion of Pilot Study the newly designed system shall be rolled out on all-India Zonal Railway.

Phase-V

On all-India roll out an implementation feedback received from units shall be utilized for review and amendment in the new system. The changes / modifications required in the cost accounting manual will be carried out and a revised manual would be framed for future implementation.



Methodology of the proposed outcome budgeting system

- A. The Project team comprising of professionals and experts shall be stationed at selected locations which will assist the team formed for the purposes of implementation of ABUC
- B. Interaction with respective process owners
- C. Interact with the Centre for Information System (CRIS) Officials for understanding the existing information system and the possibility of their interface with the accounting system so as to generate online costing data
- D. Review and analyse the basis of allocation and apportionment of joint expenditure as per the existing system
- E. Study and assess the validity of the existing costing system as compared to the proposed online costing system and identify the gaps/limitations/areas of improvements in existing processes
- F. Validate the process on sample basis
- G. Visit the field units for gaining holistic understanding of the existing system and procedure of cost accounting in IR
- H. Completion of field study work
- I. Document all the discussions, relevant data and reports collected during the above said interaction and study their significance / role in working out various costs under the existing costing system
- J. Suggest the suitable models and changes in the existing system and applications keeping in view the Budget Announcements
- K. Discussion on draft report including addressing of feedback, comments and suggestions
- L. Hold a review meeting with the Railway Team before submission of the reports / registers / documents as per milestones



Deliverables

A. 3 Months from Award of Contract

- Submission of Report on the detailed framework of the existing Costing system of IR.
- Submission of a preliminary design/framework for the proposed system.

B. Post Completion Activity

- Pilot study in a Division and Zonal HQ of IR to validate the proposed system.
- Preparation and submission of Detailed Report for implementation of the ABUC
- Submission of Performance Costing and Outcome Budgeting Implementation Manual
- Handholding and supervision for Implementation
- Incorporate modifications in the implementation manual based on feedback received during execution of report.



List of Abbreviations

S. No.	Abbreviation	Detail
1.	ABUC	Activity Based Unit Costing
2.	AFRES	Advanced Financial and Railway Expenditure Management System
3.	C&AG	Comptroller & Auditor General of India
4.	CGA	Controller of Accounts
5.	CKM	Coach Kilometre
6.	COA	Control Office Application
7.	CONCERT	Country-wide Network of Computerized Enhanced Reservation and Ticketing
8.	CRIS	Centre for Railway Information System
9.	CRS	Computerised Reservation System
10.	DRM	Divisional Railway Manager
11.	ETKM	Equated Track Kilometre
12.	EMU	Electric Multiple Unit
13.	FDI	Foreign Direct Investment
14.	FOIS	Freight Operations Information System
15.	GTKM	Gross Ton Kilometre
16.	ICAI ARF	The Institute of Chartered Accountants of India Accounting Research Foundation
17.	ICT	Information Communication Technology
18.	ICMS	Integrated Coach Management System
19.	IPAS	Integrated Payroll and Accounting System
20.	IR	Indian Railways
21.	IRPSM	Indian Railway Projects Sanction and Management
22.	LC	Level Crossing
23.	MMIS	Material Management Information System
24.	NTKM	Net Ton Kilometre
25.	PKM	Passenger Kilometre
26.	PPP	Public Private Partnership
27.	PRIME	Pay Roll and Independent Modules
28.	PRS	Passenger Reservation System
29.	ROB	Road Over Bridge
30.	RUB	Road Under Bridge
31.	SSE	Senior Section Engineer
32.	TCO	Traffic Costing Office
33.	TMS	Track Management System
34.	TXR	Train Examiner
35.	UTS	Unreserved Ticketing System
36.	WISE	Workshop Management System



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Annexure-I

Statement showing correlation between nature of expenditure and outcome – Revenue demand

Demand	Sub head	Activity	Nature of Expenditure	Outcome	Outcome in quantitative/ qualitative terms
4	200	P Way	<ul style="list-style-type: none"> Misc. Track repairs between Parasia – Chindwara section, chargeable to 04211-32. Supply and stacking of M/C Ballast at AMF depot-chargeable to 04213-32. 	<ul style="list-style-type: none"> Reduced rail fractures and weld failures. Reduction in temporary speed restrictions. Increase in GTKM and PKM. 	<ul style="list-style-type: none"> Reduction in temporary speed restrictions and increase in line capacity would result in throughput. Estimated additional revenue of Rs.... lacs per month.
	300	Bridges	<ul style="list-style-type: none"> Repairs to bridge No. 768/2 dham River-chargeable to 04310-32. Provision of chequered plates at major girder bridges on NGP Division-chargeable to 04310-32 	<ul style="list-style-type: none"> Higher customer satisfaction index and reduction in complaints. Increase employee safety and motivation. 	<ul style="list-style-type: none"> Reduction in train detention would result in improved throughput. Estimated additional revenue of Rs.... lacs per month. Fewer cases of injury / casualty on bridges, better employee relations and expected lesser payment of compensation by Rs...lacs per month.
	400	Service	<ul style="list-style-type: none"> Repairs to slab/ 	<ul style="list-style-type: none"> Higher 	<ul style="list-style-type: none"> Higher consumer

		Building	<p>roof of station and other service building –chargeable to 04410-32.</p> <ul style="list-style-type: none"> Repairs to roads at station between AMF-NRKR station-chargeable to 04420-32. 	<p>customer satisfaction index and reduction in complaints.</p> <ul style="list-style-type: none"> Increase employee safety and motivation. 	<p>satisfaction index and fewer complaints / grievances cannot be quantified in numeric terms.</p> <ul style="list-style-type: none"> The increase in life of service building. Estimated reduction in depreciation of Rs..... lacs.
5	500	Electric Loco	<ul style="list-style-type: none"> Rewinding of static inverter fan motor of WAG -7 loco chargeable to 05513-32. Reconditioning of valve sets for traction convertor of 3 phase loco chargeable to 05543-32. 	<ul style="list-style-type: none"> Increased outage of electric locos leading to reduction in detention of freight trains. Increase in throughput. 	<ul style="list-style-type: none"> Increase in loco availability, increase in loco km, higher earning per locomotive. Estimated increase in earnings by Rs..... lacs per month.
6	200	Coaches	<ul style="list-style-type: none"> Watering of coaches enroute at all Platforms on NGP station chargeable to 06211-3. Use of fire retardant materials chargeable to 06211-27. 	<ul style="list-style-type: none"> Reduction in passenger complaints. Increased passenger confidence in safety. Reduction in expenditure for treatment of passenger injuries and ex gratia payment. 	<ul style="list-style-type: none"> Reduction in passenger complaint would result in higher customer satisfaction. Fewer cases of loss of human lives, better customer satisfaction and estimated lesser payment of compensation by Rs...lacs per month
	300	Wagons	<ul style="list-style-type: none"> Transportation 	<ul style="list-style-type: none"> Improvement in 	<ul style="list-style-type: none"> Better availability

			of wheel set and other material chargeable to 06311-32.	wagon turnaround due to reduced downtime.	of wagons would lead to fewer procurement of wagons. <ul style="list-style-type: none"> Estimated reduction in capital expenditure by Rs.... Lacs.
	500	Train lighting	<ul style="list-style-type: none"> AMC of RMPU of different makes on LHB coaches in Primary maintenance – Duronto express-chargeable to 06520-32. Estimate for providing attendance for escorting duties in AC coaches – chargeable to 06520-32 	<ul style="list-style-type: none"> Increase in PKM due to reduction in enroute detention on account of AC failures. 	<ul style="list-style-type: none"> Higher customer satisfaction. Reduction in train detention due to chain pulling because of failure of air conditioning. Estimated increase in revenue of Rs... lacs per month.

Some examples of correlation between budget asked for and outcome expected- Capital Demand

Plan Head	Nature of expenditure/ budget required	Stated benefit	Outcome	Outcome in quantitative/ qualitative terms
16	Auto signaling	<ul style="list-style-type: none"> • Increase in number path. • Faster section clearance. • Higher safety. • Less assets failure. 	<ul style="list-style-type: none"> • Enhancement of line capacity. • Reduction in terminal and en-route detention. • Reduction in assets failure. • Increased throughput. • Reduced working expenses. 	<ul style="list-style-type: none"> • Higher throughput • Estimated additional revenue of Rs.... lacs per annum. • Maintenance expenses expected to be reduced by Rs.. lacs per month.
	Development of Goods shed with state of the art facilities	<ul style="list-style-type: none"> • Faster loading and unloading. • More space and time for other users. 	<ul style="list-style-type: none"> • Reduction in detention. • Increase in loading. • Higher freight Revenue. 	<ul style="list-style-type: none"> • Freight revenue expected to be increased by Rs.... lacs per month.
	Common up and down loop line and increase in CSL	<ul style="list-style-type: none"> • Reduction in en-route detention. 	<ul style="list-style-type: none"> • Enhanced throughput due to higher line capacity. • Increased GTKM, NTKM &CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs....lacs per month.
	Platform extension	<ul style="list-style-type: none"> • Accommodation of full length rake. 	<ul style="list-style-type: none"> • Enhance throughput and lesser detention. • Enhanced customer 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs.... lacs per month.



			satisfaction.	
	New chord line	<ul style="list-style-type: none"> • Reduction in detention of goods trains. 	<ul style="list-style-type: none"> • Throughput enhancement. • Increased GTKM, NTKM & CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs... lacs per month.
29	Interlocking of LC gates	<ul style="list-style-type: none"> • Signal proving. • Safety of road users. 	<ul style="list-style-type: none"> • Reduction in number of accident at LC gates. • Increased GTKM, NTKM & CKM and Traffic Earnings. • Reduced working expenses. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rslacs per month. • Reduction in number of accidents at LC gate would result in higher customer satisfaction.
	Installation of IPS at interlocked gates	<ul style="list-style-type: none"> • Un-interrupted power supply to signaling gears. 	<ul style="list-style-type: none"> • Reduction in assets failure. • Lesser detention of train. • Enhanced throughput. • Increased GTKM, NTKM & CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rslacs per month. • Reduction in assets failure and lesser detention of train would result in higher customer satisfaction.
	Parallel sliding booms and height gauges	<ul style="list-style-type: none"> • Preventing breakage of booms. 	<ul style="list-style-type: none"> • Lesser train detention. • Increased GTKM, NTKM & CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rslacs per month. • Reduction in assets failure and lesser detention of train would result in higher customer satisfaction.
30	ROB/RUB - Removal of LC gates	<ul style="list-style-type: none"> • Uninterrupted traffic flow. 	<ul style="list-style-type: none"> • Elimination of accident at LC gates. • Increase in maximum train speed. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs.... lacs per month.

			<ul style="list-style-type: none"> • Reduction in train detention. • Increase throughput. • Increased GTKM, NTKM &CKM and Traffic Earnings. 	
31	Track Renewal - TRR/CTR/TBR/TWR/TFR/TR	<ul style="list-style-type: none"> • Reduction in speed restriction. • Reduction in track failure. • Enhancement of maximum permissible speed. 	<ul style="list-style-type: none"> • Increase line capacity. • Increase in average sectional speed. • Reduction in accident. • Better riding comfort. • Increased GTKM, NTKM &CKM and Traffic Earnings 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs... lacs per month. • Reduction in accident cases would result in higher customer satisfaction.
	Improved SEJ and Thick web switches	<ul style="list-style-type: none"> • Reduction in failure. • Increase in maximum permissible speed. 	<ul style="list-style-type: none"> • Increase in line capacity. • Increased GTKM, NTKM &CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs.... lacs per month.
32	Strengthening, rehabilitation, jacketing, replacement of girders of bridges, RCC box etc.	<ul style="list-style-type: none"> • Reduction in speed restriction. • Uninterrupted traffic flow. • Safety of Railway users. 	<ul style="list-style-type: none"> • Increase line capacity. • Increase in average sectional speed. • Reduction in accident. • Better riding comfort. • Increased GTKM, NTKM &CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs lacs per month. • Reduction in accident cases would result in higher customer satisfaction.
	Provision of digital excel counter	<ul style="list-style-type: none"> • Reliable proving of track. • Reliable signaling. 	<ul style="list-style-type: none"> • Reduction in signaling failure. • Higher safety. • Increased GTKM, NTKM &CKM 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs ...lacs per month.

			and Traffic Earnings.	
33	Provision of RRI/PI	<ul style="list-style-type: none"> • Reliable signal proving . • Lesser maintenance . • Enhance safety. • Increase in maximum permissible speed. 	<ul style="list-style-type: none"> • Increase in line capacity. • Reduction in assets failure. • Reduction in accident. • Enhanced Throughput. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs ...lacs per month. • Reduction in accident cases would result in higher customer satisfaction.
	Replacement of mechanical, signaling gears with electrical signaling gears.	<ul style="list-style-type: none"> • Reduction in maintenance. • Reduction in manpower. • Enhance safety. • Higher speed • Increase in reliability. 	<ul style="list-style-type: none"> • Lesser assets failure. • Increase throughput . • Lesser accident. • Enhance throughput. • Reduced working expenses. 	<ul style="list-style-type: none"> • Working expenses expected to be reduced by Rs lacs per month. • Reduction in accident cases would result in higher customer satisfaction.
36	Platform lighting management	<ul style="list-style-type: none"> • Auto switch on and switch off lights on platform. • Lesser man power. 	<ul style="list-style-type: none"> • Energy saving in units. 	<ul style="list-style-type: none"> • Energy cost expected to be reduced by Rslacs per month • Manpower cost expected to be reduced by Rslacs per month
37	Replacement of conventional type neutral section with PTFE type neutral section (short neutral section)	<ul style="list-style-type: none"> • Reduction in detention at higher gradient section. 	<ul style="list-style-type: none"> • Increase in line capacity. • Increase throughput. • Increased GTKM, NTKM &CKM and Traffic Earnings. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs lacs per month.
51	Provision of Quarters	<ul style="list-style-type: none"> • Welfare measure for staff. 	<ul style="list-style-type: none"> • Better employee's satisfaction. • Availability of earmarked staff at 	<ul style="list-style-type: none"> • Better employee satisfaction

			any time.	
52	Provision of Construction of dormitories at Railway hospital	<ul style="list-style-type: none"> • Welfare measure for staff. 	<ul style="list-style-type: none"> • Better employee's satisfaction by providing better facilities. 	<ul style="list-style-type: none"> • Better employee satisfaction.
53	Extension of FOB	<ul style="list-style-type: none"> • Amenity to passenger to cross the rail lines. • Enhance safety. 	<ul style="list-style-type: none"> • Reduction in accident. • Lesser detention of trains. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs lacs per month. • Reduction in accident would result in higher customer satisfaction.
	Provision of coach guidance indicator	<ul style="list-style-type: none"> • Amenity to passenger boarding at trains. • Enhance safety. 	<ul style="list-style-type: none"> • Reduction in accident. • Lesser detention of trains. • Better passenger's satisfaction. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs lacs per month. • Reduction in accident would result in higher customer satisfaction.
53	Improvement to goods shed	<ul style="list-style-type: none"> • Amenity to rail users. 	<ul style="list-style-type: none"> • Better customer's satisfaction. • Increase in earning. 	<ul style="list-style-type: none"> • Revenue expected to be increased by Rs lacs per month.

Sample of physical parameters for Activity Centers

S. No.	Activity Center	Physical Parameter
1.	SSE/Works	Plinth area maintained
2.	SSE/Permanent Way (P.Way)	Equated track kilometer
3.	SSE/Bridge	Per span maintained or per meter linear length
4.	SSE/Road over Bridge (ROB)/ Road Under Bridge (RUB)	Per ROB or RUB
5.	SSE/Signal	Per equated signal maintained
6.	SSE/Telecom	Per telephone line maintained or per kilometer cable maintained
7.	SSE/Carriage	Per coach maintained
8.	SSE/Wagon	Per wagon maintained
9.	SSE/AC	Per AC coach maintained
10.	SSE/Electrical	Per coach maintained
11.	SSE/Train IT	Per coach maintained
12.	Station Manager	Number of trains passed
14.	Computerised Reservation System (CRS)	Number of reserved tickets booked
15.	Centralised Traffic Control (CTC)	Number of originating train passed
16.	SSE/Parcel	Number of parcels booked
18.	Train Examiner (TXR)	Number of trains attained
19.	Diesel Shed	GTKM/Engine Kilometer equated
20.	Freight	NTKM/GTKM
21.	Mixed Train	Ratio between passenger/freight trains
22.	Shunting Loco	Shunting kilometer
23.	Workshop	GTKM earned