INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH & DEVELOPMENT

ISSN 2278 – 0211 (Online)

New Model for Governance

Dwijadas Ghosal
Chief Manager, Hindustan Aeronautics Limited, India

Abstract:
India is faced with a large number of challenges that are typical of developing countries. It is the need of the hour to improve upon Governance system in order to achieve important objectives such as fast decision making and the monitoring system. This paper is aimed at suggesting a model and its mechanism, which will approximate the ideals of good Governance as a part of systemic process in encompassing wider developmental goal, transparency and accountability.

1. Introduction

Good Governance has long been acknowledged as a major criterion for development. It may be inferred that primary indicators of Good Governance are the relationship between Government and citizens in terms of new spaces to participate in Government process. It is envisioned that data intensive function for economic monitoring, automation of routine Government function, greater roles of peoples' group, process of transformation for the best practices and new ideas are the keys to better Governance. The model focuses on how inclusive and integrated approach in harnessing collective wisdom, development plans from Micro to Macro Level to help Government making decision will benefit the most. The model will also help Government to firm up the road map to help people escape poverty by providing them with vital guidance and information so that people have a chance to live through entrepreneurial activity. This model will propose prioritising outlay in resource mobilization considering clean water, power, daily wage, basics for family, health services are priority for the most.

2. Block Diagram of the Model

The block diagram of the suggested model for Governance is attached at Annexure –I. Interpretation of this model is the focus of this paper. Abbreviations used in the Diagram are placed at Annexure-II.

3. Interpretation of the Model

3.1. Village Level Centre

- Village/ Local Level data centre: - This centre will capture people's suggestions, development ideas in a village or a locality, people's complaint and grievances, local news and individual cum family level data.
- Village level data centre can capture data pertaining to family level information, which can deliver document like Aadhar Card. It can serve as a single instrument for all kinds of requirements such as Ration Card, Voter Card and required document for Bank/Passport etc. Village level Data Centre head will conduct the audit to validate data provided by people. Existing documents like Driving Licence, Phone number, TPAN card, Voter ID database etc. can also be further validated for full proof information source. The software should be scalable to capture information of a person in respect of his integrity or personal credentials from the source information e.g. Police Station, Bank, Electricity Board, Telephone Service provider, School/ College, Post Office etc.
- A financial incentive for people to participate in village-level development ideas and provisioning data, which will be logged against each card; can ensure such initiative. There should not be any direct payment to anyone.
- Incentives will be calculated electronically based on assessment of individual contribution and acceptability of suggestions by Audit committee 1 and Audit committee2 for a block of 100 villages. The amount will be electronically transferred to cards, which can be redeemed in Bank. Audit Committee 1 and Audit Committee 2 will be experienced and professionally qualified to guide, mentor and audit function of Village level centres.

3.2. Single Card System

Considering Nutrition is the key requirements in village level population, the single Card system can also be used as food card. Depending upon the requirement and number of heads in the family, provisioning of food items that ensures basic nutritional requirements may be ensured through ration outlets on weekly basis. Amount to be adjusted can be accounted on the basis of contribution, crop sold, and incentives out of participation. In case of family, amount may be distributed equally between Husband and wife as far husband's transaction is concerned. For women it should be fully credited to her card account. A team of nutrition specialist will decide on the items which can substantiate nutritional requirements for a family on local available items. The whole process involves bartering and money velocity in village scale.

3.3. Functioning Audit Team 1

It is proposed that Functioning Audit be constituted for 100 villages which will ensure the systemic functioning of village level centre through random Auditing

3.4. Functioning Team 2

They will be level up Audit team who will ensure the systemic functioning of 100 level 1 Audit teams through random auditing

3.5. Harnessing Collective Wisdom

There will be two way of harnessing collective wisdom. One will be bottom up approach, where participants will be providing suggestions and development plans based on the local considerations and reality. Second will be the top down approach. A team of expert opinion makers will be selected by Audit team 1 by virtue of merits of suggestions made by people in a block of 100 villages. Based on secondary data, 5 persons on each block of 100 villages may be selected. For any top level development ideas, opinion of these expert groups will be taken through village level data centre following a process of appropriate incentives for individual participation and merit in opinion.

3.6. Team of Experts in Individual Areas

Expert groups out of educated and professional people in specific areas may be formed based on social contribution, Merit assessment through online profile, test and credential checks from different sources. Entry into this expert group may be considered as recognition of individual's integrity, merit and social contribution.

3.7. Electronic Data Processing

IT infrastructure especially Data centres and Cloud computing will be the requirement for ensuring seamless integration of village level centres in capturing data. These jobs should be outsourced to all promising IT companies. Scalability, data security and storage should be the key criterion in assessing the company. Data Processing will be done at District, state and national level data centres. Data structure, Query structures, Reporting structures will be handled from District, State and National level IT centres in order to ensure collation of information from Village level centres under one roof. Reliable and effective network will be the key requirement, which is very much possible in today's context.

3.8. Empirical formula to find feedback / opinion value of Experts Group

$V = f(e, f', (pr), cr)$

$V1=W1\ (x/100)+ W2(\Sigma pr_n\ /n) +W3((\Sigma Cr_n/(\ \Sigma WnR_n)$

$V(Av)= \Sigma Vn/n$

V is a function of educational qualification of an Individual, his average rating by the people in his interest groups and his credibility factors of the agencies while he is dealing with e.g. Bank, Insurance, Income tax, Municipality, Electricity, Telephone, Police station, Motor Vehicles etc.

W stands for weightage to be given in a geographical condition. Typically Education should be given 40% weightage. Weightages for Average rating by people in his interest groups and his credibility factor should be 25% and 35% respectively.

X is the value is fixed by the level of one's education on scale of 0 to 100. Just literate may be 5, Primary 10, Secondary Education 25, Higher Secondary 40, Graduate 50, Post Graduate 60, PHD 75, Distinction in each level from Secondary education will be in the order of 5.

Pr is the peer rating

Cr is the credibility rating for the group, he is representing

V (av) = is the average rating of the person providing expert opinion.

N is the population.

R stands for respective rating in the population

3.9. Use of Artificial Intelligence in Decision Making

Artificial Intelligence technique and applications can support the decision making process. Tools such as symbolic logic, artificial Neural network, fuzzy systems, evolutionary computing, Intelligent Agents and probabilistic reasoning methods will be instrumental in recommending plans for most effective utilization of resources, to strike a balance between people's demand vs. economic

considerations. AI has the potential to improve decision-making capabilities under complex web of priority conflicts thereby optimising nation's interest. Academic institute and IT industry will be brought into process to create and upgrade algorithm to support this process to reduce errors and increase efficiency. Collaborative decision making and knowledge exchange will be enabled by virtue of AI tools in being able to interact and communicate with diverse systems on social context. AI systems can go through news, press releases, social media, and captured opinions of experts in proposed New Model for Governance, Industry reaction etc in order to impact potential changes and help people accordingly.

3.10. Feedback Loop

Feedback loop structure will ensure the complete causal path modification in order to calibrate present error on the basis of the integral accumulation of past errors, and the derivative will be prediction of future error in economic forecast as a part of decistical tool. Any decision that Government likes to take, it's possible impact can be assessed by positive and negative feedback resulting from cognitive and emotional factors among participants who are randomly selected from target population and from the expert groups. The system will have inherent sensitivity and responsiveness to encompass feedback based on this principle. Economic and social justification of any proposed project or expenditure can be assessed by linear and nonlinear feedback systems. In view of the growth of population Vis a Vis technological growth, how country seeks to improve its performance of governance in making required adjustment can be encapsulated by Feedback system.

3.11. Optimization

Whenever any Economic decision is warranted, adding quantifiable objective to an optimization problem can be a solution provider. When objectives conflict, a trade-off can be ascertained. Conflicting objectives such subsidy vs. Price rise, Industrialization vs. Green objectives can be represented mathematically as the Pareto set. However decision maker may go for favourite solution, which may deviate from the "Pareto optimal" solution. However its effect may be represented as a support tool for Decision. . In some cases, the missing information can be derived by interactive sessions between the expert groups and decision maker. Multi-objective optimization problems can be generalized further to vector optimization problems where the partial ordering is no longer given by the Pareto ordering. Economic decision can also overlap mathematical programming, game theory and Economic Equilibrium. Decisions such as infrastructure development vs. resource utilization, Administrative expenses vs. expenditure minimization, Import vs. indigenization, market portfolios etc. can be represented mathematically as economic optimization problems and can be modelled accordingly such as the method of Lagrange multipliers. For 2 conflicting objectives or variables (x,y), it may be represented as

maximize f(x, y)

Subject to g(x, y) = c.

Since we need both f and g to have continuous first partial derivatives, it is required a new variable (λ) (Lagrange multiplier) and problem is represented mathematically $\Lambda(x, y, \lambda) = f(x, y) + \lambda \cdot \Big(g(x, y) - c\Big),$

Solution of function with problems constraints in usual linear form can be expressed in matrix form e.g.

$$\max\{c^{\mathrm{T}} x \mid Ax \leq b \wedge x \geq 0\}$$

Other forms problems with constraints on alternative forms, problems involving negative variables can always be represented as an equivalent problem.

3.12. Values and Standards

Values and standards of the Governance should be above any individual's discretionary power and should be upheld as a part of systemic process. Such seriousness will govern an individual's social behaviour and deliverance. As society moved into the modern era that earlier system of laws may needs to be amended from time to time, but core values should be above time, religion, caste, creed etc. Once discipline is applied in society, it will transform mob behaviour and it will develop a capacity within them to distinguish between right behaviour and wrong behaviour. Transformative education in every level will also be instrumental in consolidating values in the society.

3.13. Decision Support System (DSS)

Network based information system should support Government's decision-making activities. It is suggested that Decision support systems should be made fully computerized with occasional case of manual intervention. Analytic techniques with traditional data access and processing function will ensure DSS function. It can be designed as a Decision Support portal with interactive platform to compile useful information from a combination of raw data, documents, and individual and expert knowledge and system models to identify and solve problems and make decisions. Looking into the complexities involved in analysing data involving many conflicting objectives, a cooperative DSS model is suggested since it will allow decision maker to modify, complete, or refine the outcome /suggestions provided by the system before validating the same. General purpose logic programming language like Prolog involving artificial intelligence and computational linguistics will be instrumental in providing solution functionality in declarative precision. The feedback loop come into action and process is calibrated in tools like Groove and improves through AI techniques. Outcome is archived as facts, rules, procedures and structure for decision assessment in electronic format, which are automatically called up for

future decision making process for similar kind. DSS will also provide interactive software to analyse a situation on AI technique which may not be necessarily data-intensive. DSS will be linked to cloud tools and Hadoop in data centres and will serve many users in Government in different locations. Decision Support System has to offer Intelligent Searching, Design & analyzing possible alternative actions of solution. Although theoretical possibilities of building such systems in any knowledge domain exist, an enormous IT effort is warranted if we want to get the best out of it for sustainable development. For example in order to get optimum result in Agricultural production; data pertaining to land, possible crop mix, Knowledge about Seed productivity, Micro finance, weather, Irrigation, Fertilizer, input cost for seed, Market price of unit value of crop, harvest scheduling, crop value per unit of land, Market dynamics, Income level, availability of other food crops and survival compulsions, Master roll for engaged peasants etc are required for strategic decision. Government must focus aggressively in agricultural sector to bring out most effective solution for higher productivity, although there could be huge challenge for successful adoption. Similarly for Forest Management, Environment protection, Railway system, Tourism, Transportation, Mining, Health care , Water, Power, civic amenities etc.; this system will be instrumental in taking right decision for betterment. The systemic efficiency will be greatly enhanced by the speed in decision making which had been inherently a bottleneck in Governmental system. Apart from this, intellectual refinement, innovation, Interpersonal communication, new approach and thinking about problem will be inculcated by virtue of this process. Decision makers will have the solid confidence since they will have the evidence in support of a decision.

3.14. Event Prediction

Looking into the ideas from statistical learning theory, association rule and Bayesian analysis, it is possible to firm up algorithm to predict events in a particular domain by intelligent classification, conditional probability from historical data, regression and ranking methods. For example in order to predict type of health challenges people will face can be predicted with remarkable accuracy provided database of treatment history and time line of symptoms of individual patients are electronically archived. This prediction will have immense help for Government to resort to mitigation measures for the welfare of people eschewing the pure assumption/ guess and ball park projection. Although enough data is always helpful for the prediction, however even with paucity of data, sample data, after rank ordered with stratified random samples can also provide prediction to a degree of acceptability by machine learning programming. High end mathematical treatment is required to establish the correlation matrix of the variables and establish the algorithm.

3.15. Opinion and Statement Validation

It is definitely a challenge so far to validate an opinion or ideas of person, which could be a very important element for its implementation. It is suggested that a comprehensive model be created for statement validation for important matters for the nation. This analysis can also be validated by correlation and importance analysis in a matrix. Supposing we want to analyse a statement like Cooking Gas should be subsidized by X amount. The impact analysis of this statement has to be done for all related issues which will be impacted directly by this decision. The next level will be indirect impact of this decision. The matrix should cover Present Production cost, Production level, Total consumers before subsidy, additional number of consumers through demand supply analysis, total impact on Exchequer, Ratio of tax paid by the consumers and tax paid by all, Peoples' reaction, Reaction of the expert group, Relative contribution and Sense of Justice logic from the values of the Government. From this analysis, Government can take a decision regarding its implementation.

3.16. Prioritization

A prioritization matrix can be constructed to facilitate Government to take decisions by narrowing options down by virtue of analytical methods to ascertain relative importance respectively. When so many projects are required to be sanctioned within the constraints of resources, such analysis will be an instrument for the Government to approve and sequence sanction to the best of economic logic. Matrix can be arranged as follows:-

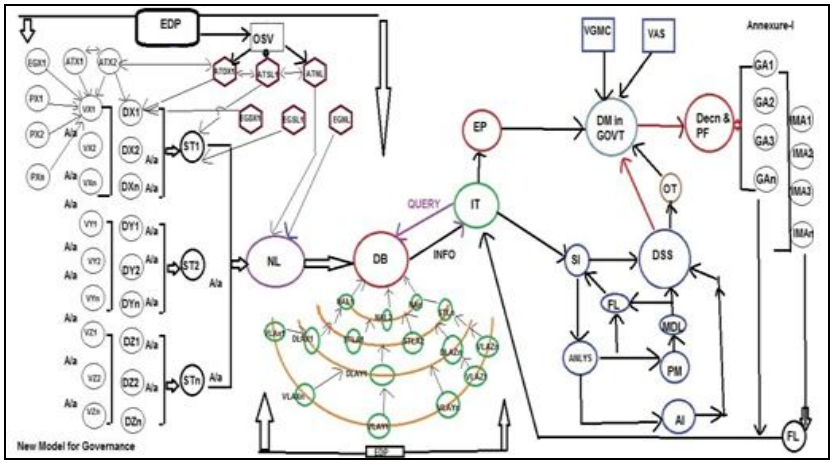
What Vs How									
Strong Relationship	9								
Medium relationship	3								
Weak relationship	1								
				Hows/Levers					
			importance Weight age	Availability	Reach to people	Income generation	Downstream Process	Technology	resources
	What\ Parameters	Fund							
		Scale							
		Benefits							
		ROI							
		Connectivity							
		Time Scale							
		Economic impact							
		Environment							
		Absolute important							
		Relative Importance							
		Technical Difficulty							

3.17. System Integration

Design of Governance System from Micro to Macro level can be very complex which warrants different systems and software in varied platforms to be in operation as a co-ordinated whole. Application Integration Service, Data Centre Service, Cloud Service, Network and Security Service in different systems and subsystems are to be integrated for the solution functionality of the final output. This will involve data transformation service as well to help convert information from the application's format to the bus's common format. The entire process will involve multiple layers of Integration in respect of Vertical, Horizontal and even Star / Spaghetti alignment in each layer.

4. Conclusion

The paper is aimed at presenting the conception of New Model for Governance by virtue of Diagrammatic representation. Although complexity involved in such exercise could be enormously challenging, however this could provide inputs for developing new models for better governance and improvement of existing models.



Annexure-II

Abbreviation used in the Diagrams

- (PX1, PX2.. Pxn):- Designates the full set of individuals in the Population of a village.
- (VX1, VX2… VXn):- Designates the full set of village Level Centres in a specific District in a specific state.
- (VY1, VY2… VYn):- Designates the full set of villages in other District in another state
- (VZ1, VZ2..VZn):- Designates the full set Villages in a concluding District in the concluding state
- (DX1, DX2… DXn):- Designates the full set of District Level Centres in a specific state.
- (DY1, DY2… DYn):- Designates the full set District Level Centres in another state
- (DZ1, DZ2..DZn):- Designates the full set of concluding District Level Centres in a concluding state.
- (ST1,ST2..STn):- Designates the full set state Level centres in the nation
- NL:- National Level Centre
- (VLAX1, VLAX2… VLAXn):- Designates the full set of Village Level Agencies in a specific Village in a specific state
- (VLAY1, VLAY2… VLAYn):- Designates the full set of Village Level Agencies in other Village in other state
- (VLAZ1, VLAZ2… VLAZn):- Designates the full set of Village level agencies in a concluding District in the concluding state
- (DLAX1, DLAX2… DLAXn):- Designates the full set of District Level Agencies in a specific District in a specific state
- (DLAY1, DLAY2… DLAYn):- Designates the full set of District Level Agencies in other District in another state
- (DLAZ1, DLAZ2… DLAZn):- Designates the full set of District Level Agencies in a concluding District in a concluding state
- EGX1:-Expert Group in a Specific Village level Centre
- ATX1:- Audit Team 1 in a Specific Village level Centre
- ATX2:- Level up Audit Team 2 for a Specific Village in Co-ordination with District Level Counterpart
- ATDX1:- Audit Team in a Specific District level Centre
- ATSL1:- Audit Team in a Specific State Level Centre
- ATNL:- Audit Team in the national Level Centre
- EGX1:-Expert Group in a Specific Village level Centre
- EGDX1:-Expert Group in a Specific District level Centre
- EGSL1:- Expert Group in a Specific State level Centre
- EGNL :- National Level Expert Group
- A/a:- Represents that the type of agencies and their inter relationship for the specific entity will be exactly same as the preceding one (above).
- DB:- Database
- EDP:- electronic Data Processing
- OSV:- Opinion and Statement validation Program
- IT:-Information Technology, which sources data from Data Base in Query module and receives information to process it further for specific requirement.
- EP:- Event Prediction Program
- SI:- System Integration Hardware and Software
- DSS:- Decision Support System

- FL :- Feedback Loop
- PM:- Prioritization Module
- MDL:- Models
- AI :- Artificial Intelligence Program
- Anlys:- Analysis Module
- VGMC:- Vision, Goals, Mandates, Constitutional / Legal obligations
- VAS:- Values and Standard
- DM in Govt:- Decision makers in Government
- OT:- Optimization Module
- Decn & PF:- Decisions and Policy formulations.
- (GA1,GA2, GA3..GAn):- Designates Government Agencies responsible Post Decision activities and Planning actions, Fund Syndication etc. prior to implementation.
- (IMA1,IMA2, IMA3..IMAn):- Designates Government's Implementation Agencies

5. References

1. Applying QFD to improve the requirements and project management n small-scale project, Terhi Kivinen, University of Tampere May 2008
2. Interscience Management Review (IMR) ISSN: 2231-1513 Volume-2, Issue-2, 2012
3. NCAIR, Design Process Matrix Course, IIT Mumbai,2012
4. General Studies- Wikipedia and other Internet Sites