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A STUDY ON IMPLEMENTATION OF 'SMART GRID' TECHNOLOGY IN INDIAN POWER SECTOR

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ABSTRACT: The paper explored the reasons for decaying of Indian power distribution sector and provided solution through 'smart grid' technology. Largely from the horse mouth, the paper captures several vital information and data about all the 'Smart Grid' programs in India as well as abroad; and have observed several implementation issues. For example, increased involvement of Politicians, Bureaucrats, Policy Makers, Regulators, Big Consulting Companies, MNCs, Local Big IT and Power Companies, Small Group of Contractors etc. has killed the basic objectives of smart grid implementation. Further, DPR are being prepared and the costing of the projects are suspiciously being prepared by some select consulting groups who have made a close internal link (between politicians, Bureaucrats, Chief Officers/Executives of Electricity Companies, and some select suppliers/vendors).

KEYWORDS

Smart Grid, Discom management, Power sector

Introduction

Indian Power Sector, particularly power distribution sector is passing through its worst phase. It is in huge crisis, rather decaying since last many decades. Enough efforts have been made by various governments, lots of reforms have been introduced, but unfortunately, the end results are zero, even negative. As per the latest RBI report, it has been observed that, even the latest scheme 'UDAY' of central government has been declared as the biggest failure.

On the other hand, 'Smart Grid' technologies worldwide have been renowned to be the best solution for integrating the power sector value chain (i.e. Generation, transmission, systems operation and power distribution), providing online, fully automated effective results and been recognized as a powerful instantaneous tool for energy accounting, energy management, energy optimization, renewable energy integration, reducing AT&C losses, enhancing revenue, increasing customer satisfaction levels and improving the overall performance of the power sector. 'Smart Grid' in India can modernize electricity delivery system so that it monitors, protects and automatically optimizes the operation of its interconnected elements – from the central and distributed generator through the high-voltage network and distribution system, to industrial users and building automation systems, to energy storage installations, to domestic end-use consumers and their thermostats, electric vehicles, appliances and other household devices. Further, it can enable the consumers to produce electricity at their doorstep through various renewable energy resources, and can feed it into an infinite grid without any hassle.

The current study aims at exploring the reasons for decaying of Indian power distribution sector. The study also attempts to identify a solution from the 'Smart Grid' perspectives.

Background of the study

'Electricity' has been one of the key important commodities for human being. Each and every instruments, components, apparatus, gadgets, machines, systems, everything is running on electricity. Without electricity, the human life is null. No matter which sector we consider (Domestic, Commercial or Industrial) every segment of our socio-economic systems, everywhere, the 'electricity' has become the most essential commodity, without that the life is nothing. With the new era of computerization, digitalization, fast automated and remotely monitored/controlled systems, all functions and operations of the systems are 100% dependent on quality, reliable and continuous supply of electricity. At the same time, 'electricity' is such a typical commodity, that can never be seen, (it is totally intangible), cannot be touched, neither can be bundled nor be packaged in anything. And at the same time, it cannot be stored even. Thus whatever is generated must be consumed immediately. Thus generating the electricity, transporting/transmitting it, distributing it from its originating source up to its consumption point, it has got a very typical and complex path and attracts extraordinary care. Also with the introduction of all new innovative type of electricity generating source, such as renewable energy sources, waste-to-energy sources and other new upcoming innovating techniques, the handling and completing successfully the 'electricity value chain' has become more challenging than the earlier. It is capital intensive, attentive, and instantaneous time-responding, activity.

Distribution company performance and Smart Grid

Though Generation, Transmission and Systems Operations have been made efficient, transparent, and effective, the final downstream vertical, the Distribution sector has been the root cause of entire value chain to failed. This is because, the Distribution sector is unable to distribute power efficiently, effectively and unable to generate the revenue at its full scale. This is causing to lose money in very large volume making entire system to collapse.

What exactly is happening that, all the generators putting their huge capital, installing power plants, generating electricity at full scale, Transmitters are transmitting the power at their best efficient networks, receiving electricity from various generating stations, and transmitting it and delivering it to distribution companies towards their load centers, but unfortunately, the DISCOMs (Distribution Companies) of all the states in India are not properly functioning, and not able to generate the revenue from their consumers for the electricity which they are selling to them. This is breaking the whole value chain, and making all the verticals to end-up in a huge loss.

It has been observed and concluded by all the governments that, in India almost all the DISCOMs aren't not having even a proper and accurate 'energy accounting' system properly deployed, that means they don't even have a proper accounts and checks on, exactly how much electricity has been delivered, and sold to the consumers at a particular time at which rate? If this basic information, detail is not made available, how the actual energy accounting can be done? And how the real billing and revenue generation can be made? There is no proper MBCC-Metering, Billing, Collection and Customer Care system deployed. Eventually a distribution company ends-up into an irrecoverable loss. This is known as 'AT&C – Aggregate Technical and Commercial' Loss, a main root cause for all DISCOMs to make loss. Since there is no proper accounting, billing, and revenue collection by DISCOMs, Transmission and Generation Companies suffers a lot (as DISCOMs don't generate revenue, they become default in making payments to TRANSCos, ISOs and GENCos). Hence Generating and Transmission Companies also make losses for no reason. Thus an entire value chain in power sector gets broken. Since this phenomenon keep on repeating continuously, the losses to all DISCOMs, TransCos, GENCOs and ISOs keep on piling up, eventually forcing into declare bankruptcy for all. These are the factually situations presently eructing almost in all the states of the country. Also on the other hands, so many renewable energy projects (particularly Solar PV – projects) are being deployed in mass level all over the countries by lots of private entities; they are ending up in a huge loss because of non-payment of money to them by DISCOMs, causing a big question of survival to them.

To resolve these serious issues, central government had launched a special scheme called: 'UDAY'. 'Ujjwal DISCOM Assurance Yojana (UDAY)' is the financial turnaround and revival package for electricity distribution companies of India (DISCOMs) initiated by the Government of India with the intent to find a permanent solution to the financial mess that the power distribution is in. It allows state governments, which own the DISCOMs, to take over 75 percent of their debt as of September 30, 2015, and pay back lenders by selling bonds. DISCOMs are expected to issue bonds for the remaining 25 percent of their debt.

Recently, RBI-Reserve Bank of India, has published one report into which it is clearly mentioned that, the 'UDAY' scheme has been a big failure, even after its launching for last four years, by the end of financial year 2018-19, the total loss of DISCOMs has gone up to almost a figure of 15132 Crores rupees for the whole nation. There are more than 80000 Crores of rupees still due for payment by DISCOMs to be paid to all Generating Companies.

So, what should be the remedy for all? Yes, there is only one effective solution to resolve all of these burning issues; that is implementation of 'Smart Grid' technology in entire power sector, particularly in power distribution sector.

Use of smart grid for Discom management

'Smart Grid' in India can modernize electricity delivery system so that it monitors, protects and automatically optimizes the operation of its interconnected elements. The following paragraph explains the concept of Smart Grid and its applications.

The philosophy of 'Smart Grid' is to make the 'Grid' more intelligent, self talking, self healing, self communicating, self decision making, system which will help attaining enhanced situation awareness and responsiveness, enabling operational excellence for the utility, and improved experience for the consumer through system operations, automation and controlling the consumer premise for load control" . Smart Grid means, Intelligent Grid [making it, Inter Operating, Electronics, Leaching to, Improved, Grid, Enterprises]. The Smart Grid is;

- A combination of hardware, management and reporting software, built atop an intelligent communications infrastructure,
- In the world of the Smart Grid, consumers and utility companies alike have tools to manage, monitor and respond to energy issues.
- The flow of electricity from utility to consumer becomes a two-way conversation, saving consumers money, energy, delivering more transparency in terms of end-user use, and reducing carbon emissions.

In a nutshell, there should be an efficient and effective system which can,

a). Deliver an un-interrupted, reliable, quality, and an instantaneous power supply to their consumers at an affordable price, (at a minimum possible cost to serve factor)

b). Generate revenue, effortlessly, honestly, correctly, without any loss of time and money, (at a minimum possible cost and least 'Aggregate Commercial and Technical' Losses)

c). By having a best coordination among the four major pillars (Generation, Transmission, Systems Operations and Distribution) of Power value chain.

d). With the new era of adding maximum sources of renewable energy generation, the new additional task is to encourage and facilitate all individual consumers to produce electricity at their doorstep through renewable energy resources, and feed-it-into an infinite grid to reduce overall cost of power, and increase 'SEVA' (Socio-Economic Value Addition) to the value chain.

Why? When and How?

With the help of Smart Grid technology, one can bring a radical change into the entire power value chain:

Because, 'Smart Grid' systems uses an integration of Power-Energy Systems with IT-ICT-OT-IoT-AI/BI, UI/UX, ML/DL, RPA, and Big Data Analytics and Management, Macro-to-Micro Data Management Services, using all latest techniques of MeAn (MongoDB, ExpressJS, AngularJS, & Node.JS); R-programming, Ruby and other Block-Chain Technology based Financial / Energy Mgmt./ IoT/C&CC/Hyper-BP systems.

By using 'Smart Grid' technologies, one can make Energy Management arena fully automated, and instantaneously responding plus effective by making best use of Information Management arena.

Under the 'Smart Grid' concept, there are four major domains which bring revolutionary change into the power sector.

(i) Generation Automation

(ii) Transmission Automation

(iii) Automation into System Operation techniques

(iv) Distribution Automation

These domains get fully automated and instantly responsive in the following areas of:

(i) Generation Automation

- Supply Side Management
- Generation synchronization optimization
- Decentralized Distributed Generation optimization
- Operations optimization
- Assets Management and performance efficiency
- Revenue Optimization

(ii) Transmission Automation

- HV and EHV Transmission Automation & Optimization
- Grid Disciplines, Self Healing of Transmission Lines
- Asset Optimization & Management
- Automated Power Flow Optimization
- Energy Flow Optimization
- Automated System Fault Identification, Isolation, Restoration and Break-down Management
- Automated Energy Accounting and Revenue Management Systems
- HVAC, EHVAC, HVDC and Ultra High Level Transmission Management
- NMS – Network Management System, OMS-Outage Management Systems (Redirecting of Power Flows)

(iii) Automation into System Operation techniques

- Automated Systems Operation, Balancing, and Accounting
- Operation Systems Contingency Management
- Automated Energy Flow Management, Generation-Load Balancing, and Settlements
- Renewable Energy Integration, Synchronization, Energy Flow Management, and Scheduling and Balancing
- Energy Flow Settlement, and Systematic Accounts Management
- Power Trading, and Open Access
- WAMS – Wide Area Management Systems
- NMS-Network Management Systems and OMS-Outage Management Systems (Rescheduling, Redirecting of Power Flows)
- Adaptive Islanding and Micro Grid Integration
- Self Healing of Infinite Grids

(iv) Distribution Automation

- Advance Metering Infrastructures (AMI)
- Automated MBCC – Metering, Billing, Collections and Customer Care Systems
- AT&C – Aggregate Technical & Commercial Loss Management & Optimization
- Automated Asset Management
- Distribution Automation
- Automated DSM-Demand Side Management
- Automated DR-Demand Response, CEM-Corporate Energy Management; HEM-Home Energy Management
- REM-Renewable Energy Management
- DNMS-Distribution Network Management Systems
- DER-Decentralized Energy Re-integration
- Automated Energy Accounting and Audit Systems
- Automated Fault Identification, Isolation, Restoration Systems
- Automated Connection – Disconnection Systems
- Automated Prepaid-Postpaid Metering Systems
- Automated DDEGD-Decentralized Distributive Energy Generation and Distribution Systems
- Automated Consumer / 'Prosumer' Energy Management and Accounting Systems
- Asset Management, Operation and Maintenance Systems

Thus if a 'Smart Grid' system is selected and deployed, smartly into the power system arena, it can make miraculously best system forever, and give best efficiency and outcomes as desired by the systems to lift up their performance.

Only the things to be taken in consideration are:

- Selecting the right technology, at right place with right choice and right timing
- No blind copying or following of the advance techniques, but making them contextual, result oriented, efficient and cost effective
- Sequencing and prioritizing the 'Smart Grid' projects with respect to their cost, time, and results (return on Investments and Socio-economic value addition) to the desired and effective stakeholders
- Balancing among Cost, Time and Performance (revenue returns)
- Need based prioritization and selection of projects
- Looking for 'Long-term' sustainable benefits rather than 'short-term' gains
- Making a proper What-if Analysis before selecting and implementing the project
- Conducting proper 'Impact-Analysis' studies before finalizing the project
- Preparing true 'As-Is'; 'To-Be' and SRS Reports after making thorough studies of the requirements with cost-benefit analysis
- Having a proper check-correct system during and after executing or implementation of project
- Having effective closed-loop feedback control and correction management system properly deployed for all 'Smart Grid' projects to have individual and collective analysis, check and control over the operations of systems

Pros and cons of 'Smart Grid' Technologies

Pros:

- Can bring a revolutionary and radical change in entire values chain of the power and energy management systems
- Can make the systems completely integrated, self monitoring, self-healing and self-correcting
- Can reduce the time of operations, increase performances in terms of efficiency, revenue generation, AT&C loss reductions, and system optimizations
- Can reduce human intervention and human errors factors
- Can make the system fully responsive and self-communicating self-accounting
- It guarantees to improve technical and commercial efficiency of the entire power value chain, and thus improving overall performance of the systems

Cons:

- If not properly selected, can bounce back
- Vulnerable for cost effectiveness
- Can go into the hands of wrong people, wrong management, wrong technology provider, wrong executer and spoil whole of the project purposes
- Can kill the basic purpose and objectives of the projects, if it is incorrectly designed, derived and implemented by selecting the wrong strategy and incorrect technologies
- Because it is a bundle of new innovative but emerging immature techniques, sometimes may get failed or give unexpected results
- Integration of different technologies are deeply involved into making the whole system efficient and effective, sometimes mismatching of technologies can create undesired situation in the power value chain, may harm to each other
- Improper selection and misappropriation of funds, or wasted interested of some group of people can create negative impact and wrong impress about the techniques and systems
- 'Half knowledge is always more dangerous', this idiom can be applied if the decisions making team is having no proper knowledge or have wasted interest in selecting and deploying the technologies

Lacunas and System Flaws

- Up till now five major 'Smart Grid' Projects have been deployed in the country: (i) NDMC-New Delhi (ii) BESCOM-Bangalore (iii) DISCOM-Bhubaneswar (iv) DISCOM-UGVCL-Gujarat and (v) NDPL-New Delhi. Out of these five only two projects can be defined as successful, i.e. NDPL, and NDPL up to certain extent. Rest all projects have been proven to be waste of everything (waste of time, waste of money, and wastage of resources)
- The main reasons for failure of projects are: (i) appointing wrong team for decisions making about the project selections (ii) appointing wrong consulting agencies who designed the projects and the terms and conditions of the 'Tenders' (iii) having wasted interests of Project owners, Project approvers, funds providers, and implementing agencies, making the entire project into dump.
- There have been lots of cases of funds misappropriation and funds siphoning, misusing the power of positions, and cartel / price rigging for the projects
- Instead of customizing the Projects and identifying the proper objectives and capabilities of the projects, there were the numerous cases of blind following of foreign technologies, that too adopting it from the suppliers/ vendor who had wasted interests in selling their products and solutions, moreover the implementing agencies were also with carrying their doubtful integrity, grabbing the projects by bribing the officers. All these cascading occurrences got accumulated and created lots of negative impacts, eventually killing the whole purpose of deploying the valuable project, and the technology.
- The consulting agencies who designed the bidding terms and conditions had adopted totally a wrong approach for the reason best known to them, moreover they suspiciously hiked the total cost of project (in multi fold almost 20 times more than its fair value) by estimating wrong and exaggerated prices for the products and solutions, selecting wrong, improper and costly items, products and project tasks, maybe for favouring only to some select suppliers/vendors. All these mal-practices cumulatively made the whole project completely failed

Observations and Findings

- The author and their team members (under their separate 'Smart Cities' development programs) have visited more than 25 Cities and Towns in various countries around the world (all high-class developed, moderate developing and poor under developed nations), and travelling since last eight years. Similarly their team members are continuously travelling and visiting all major cities and towns in India, and observing very closely, what exactly happening around the world , as well as in India?
- With their individual and collective efforts, they have gathered vital information and data about all the 'Smart Grid' programs in India as well as abroad; and have observed so many surprising activities, especially, in 'Indian Power Sector' and other sectors, those are as follows:

- All the 'Smart Grid' programs, and other important socio-economic programs, have been lost their real objectivities, and have been hijacked by some special group/gang of Politicians, Bureaucrats, Policy Makers, Regulators, Big Consulting Companies, MNCs, Local Big IT and Power Companies, Small Group of Contractors, Project Executors, Implementers, System Integrators, and Product/Solutions Suppliers/Vendors!
- The real and basic purpose of the Projects (i.e. its socio-economic value additions, performance improvement of public utility service agencies, improving the service level and facilities of the public organizations towards the common people) are killed. Nobody is bothered about the genuine objectives and goals of the projects. None is bothered for the end-results and real outcomes of the Projects.
- All such high value projects are seen only from the point of view that how much extra money can be grabbed and earned through it? Initially, how much maximum propaganda can be done to attract maximum possible public attention can be drawn and its essentiality factor can be increased for getting it approved under government aid programs.
- In the name of Nation's Development, and Systems Improvement programs, and Infrastructure Development Programs (Smart City), plus other so called Global-prestigious 'Renewable Energy, Global Warming, Climate Change, Energy Conservation, Energy Security, Energy Storage, Electric Vehicles, programs, there is nothing but a fund siphoning at a very large scale.
- Starting from Policy makers, and Chief Consultants, who are designing and deriving these programs, and earmarking government funds and aids, and who are preparing the DPRs, and Global Bidding (Tender) Documents, are (in a very harp and Smart way), selecting the Technologies and Projects, which can get fit to only some specific group of companies, suppliers, and vendors who have monopolies into those areas!
- The DPR are being prepared and the costing of the Projects are suspiciously being prepared by some select consulting groups who have made a close internal link (between politicians, Bureaucrats, Chief Officers/Executives of Electricity Companies, and some select suppliers/vendors). They are mentioning, very highly escalated prices (in scales of 15 to 25 times more than its real price) the prices for all the components, products, solutions, required to be procured and deployed in these 'Smart Grid', and 'Smart City' related projects. The prices are set in such a way that everybody's wasted interest and all KB-Kick Back components are already covered into that of all agencies (politicians, bureaucrats, chief officers/executives, consultants, suppliers, vendors, system providers, system integrators, system executors, etc). Thus the basic price of the Projects itself get hiked at its initial stage itself, and that too in a multi fold ways. (Example, a Project whose real fair value is say Rupees 15 Crores covering everything to be deployed and executed, but now its Basic Tender price will be escalated to the tune of 90 to 95 Crores by the consultant and project designer, it will be made justified also, by way getting it pre-audited and approved by three to four government authorities, (who are already taken care of). Now it will be floated into the public for global bidding!
- The prices for implantation and execution of the projects are also set in such a way (almost four to five times more than its fair value) that the wasted interest of everybody (who is involved into this malpractice, 'chain of mischievous people') is taken care of. Thus everything is well set in advance
- Pre Qualification and other selection criteria's, are being purposefully set into the DPR, and Bidding Documents, smartly in such a way that only few select agencies can get qualify for the bidding and they only can participate into the tender/bidding process. It is very minutely checked and ensured that no any unknown or other party (who is not involved into this gang) get qualified or selected into these Programs.
- Once the Bidding and qualification process is over, the Project is awarded to any one agency who has bid the lowest price. (This lowest bid price, in actual is almost five to seven times more than its real, fair value).
- There is one another setting among all bidders too. All the bidders are closely connected to each other

externally. They all are the part of the price rigging scam. None will bid for any tender for less than some specific bottom price derived by this gang, and All the bidders will share the Projects region wise or it value wise (i.e. in one region if one party has been selected and awarded the Project, then it will not get another Project in other region, then there will be an another party's turn). Thus the entire similar category Projects will be distributed proportionately to all the bidding parties as per their offers of the KB-Kick Backs.

- One another technique of siphoning the funds is delaying the project, and then escalating its basic price once again! This is like after kick-starting the Project, initially it will pick up the pace for first few months, then after it will be delayed purposefully, by putting one or other excuses. After seven to nine months, the project will be declared as delayed for further one year. (This will also be technically justified very smartly by these gangs). Now again the price of the project will be escalated at least for 1.5 times more than its bid value. Thus one more window for fund siphoning shall be opened!
- It might be looking very surprising, shocking, funny or hypothetical? None can accept these facts! But it's real, there are such practices going on in India. It's almost open secret, every employee within all these organization knows about it. They know the real, fair values of each and every task, products, and solution, and they also know all these gimmicks, but since they want to survive themselves, and because they don't' want to lose their job, they're keeping mum into these matters.
- Generally, there is no any proper, in detail audit being carried out! The Audits even if up to the CAG level are carried out, nobody in the CAG has that much in-depth knowledge or idea about all these kinds of gimmicks. Most importantly, the auditing fellows at CAG or any such agency level, are expert in accounting and other mathematical tallying method, but they are not from the core domain of these fields, and hence no any idea about all these internally, smartly played games. They are not even aware about such price escalation of the project components at its initial grass-root designing level, and they can't even cross check or verify it, because they don't have the source to identify them, and not even they have such power or authority to go into such a deep level and challenge the whole corrupt system.
- All these observations are not hypothetically imagined or fabricated? But they are found out after carrying out a detailed secrete investigation, after interacting with all grass-root level people and employees of the different organizations, agencies, consulting companies, implementing agencies, after detailed discussion with some honest, loyal and patriotic government employees, some information revealed by some whistle-blowers, by even some people, who are already involved into such malpractices directly/ indirectly, and now because their conscious are biting them, they are hove come forward and revealed all these secrets.
- And, if we look at the facts of the recent past, that even after spending thousands of Crores of rupees in India for uplifting, reforming the power sector under APDRP, R-APDRP, REC, PFC, and so many other such schemes, even the recent example of latest 'UDAY' scheme launched just four years ago have been totally failed, and thousand of Crores of rupees (the public money, the world bank's money) have been wasted, rather been siphoned by some few select people, agencies and some Politicians, Bureaucrats, MNCs, and some other people involved into all these scams!
- If really we want to expose all these? Let's have a genuine survey with all the concerned people, conduct a survey anonymously, ask the questions in a squirrel away and allow all the stakeholders to present their honest opinions and experiences without disclosing their name and identity. Let's have even an online 'open public referendum' asking all these facts putting in the air via questions (open ended questions or in MCQ form), and interview the people confidentially, and gather these information, it will give 100% result as what is observed up till now, it may come out even more surprising and shocking than this too!
- It's an open question, where all those money have gone? Is there any check and audit on to it? So many new technologies have been adopted and deployed in the nation, has it given any remarkable outcome which can be shown or demonstrated gracefully, proudly as an achievement for the Nation? These are all public money which are getting siphoned by some few corrupt people, ultimately those are being paid directly or indirectly by all citizens of the country. Even if the amounts are coming from World Bank or other Financial Institutions globally, eventually they are becoming a burden on the common people of the country, Ultimately, by way of direct or indirect taxes, or in other indirect way, the common public of the nation is paying for it all.
- So this is a very clear but serious offensive case of cheating and looting the public money by these corrupt people.

Suggestions and Recommendations

Looking to all of shocking observations, as mentioned above, it is suggested and recommended that:

- Let us conduct an open on-line referendum or conduct a secrete survey or investigation in a very transparent, fair and bold manner
- Let us bring all such mal-practices on the surface in the public domain, and let the public do investigation at their own
- The fair and bold, transparent questionnaire, in a very smart way shall be framed by us. We shall generate such a strategic framework of public survey material and float into the public domain and get it answered and validated by the people, of the people, for the people of the largest democracy in the world.

Constructively, there are some genuine and effective suggestions from the author team side for best implementation and getting fruitful and effective outcomes of the program, as under:

Take the charge of the entire public project domain, and re-design and re-derive the whole 'Smart Gird' based technology enhancement and deployment program, and do it again very systematically:

- **Re-structure the whole program as mentioned below:**
- Break-down the model into seven categories:
  - (i) Technical
  - (ii) Functional
  - (iii) Financial
  - (iv) Commercial
  - (v) Human Capital
  - (vi) Policy Frame working
  - (vii) Regulatory Aspects
- But before breaking it down and re-structuring them, first identify the basic needs, urgent needs, long-term achievements, spontaneous goals, instant requirements, return-on-investment, socio-economic value additions, and last but not the least, look at the contexts and prioritized all the projects according to instant requirement, long-term sustainable achievements, and maximum outcomes at minimum input.
- Very first thing to do is taking the whole charge of the program and the projects from all such suspicious and proven group of people of having wasted interests. Keep them away from all the future programs and activities
- Very importantly, derive a framework with highest level of transparency, honesty, loyalty, and ethical values into the people who are now being involved into all future programs
- Design and Derive one effective, instantaneous on-line 'Program and Project' Execution Management Checking, Monitoring, Control, Reporting and Systems Flaws Identification and correction Model. In which, we can also guide and support in designing and deriving it.
- Identify the right people, the perfect capable, honest, loyal and work-efficient Human Capital, provide them all tasks with defining and deriving full responsibility, accountability, and penalty
- Select right Program, right Project for the right entity; identifying the urgent needs, long-term goals, and sustainability of the projects
- Work out for techno-commercial feasibility, socio-economic benefits, and practical applicability, give highest significance value to the time, value for people and value to the money
- Prioritize the Projects based on their sustainability, optimum outcome, and highest long-term benefits to the mass of people, rather than some few select group of people
- Make the entire model as 'stakeholders' model' involving all stakeholder's efforts and inputs in a well disciplined manner.
- Each and every Program and Project must be monitored, controlled and improvised during their deployment stages.
- There must be a transparent, instantaneous, on-line auditing, accounting, monitoring, controlling, analytical and business intelligent system, which can make a closed-eye watch on all the projects and make a check and balancing of all the projects for all sort of resources (Man, Money, Time, Material, Product, Technology, Process) optimization.
- There are many good, ethical people and domain experts available but they are not coming forward because the projects and programs have been hijacked by some groups of wasted interest and corrupt people. Similarly there are better high-technologies, high-end products, and solutions available in the world, but they are unable to come in the market because the market has been captured by some few self-oriented people with malign mindsets who have dominated in the market; squeezing and suppressing the genuine parties; stopping them to come out with tier best products, solutions and techniques.

Conclusion

The Hypothesis and the research statements of this study are partially getting true. They are partial because of the constraints coming out due to some Human behavioural aspects getting superimposed on to the Technological aspects. There is nothing Impossible in this world, if we wish we can turn *'impossible'* things into *'I am possible',* only the matter is about the sincerity, loyalty, honesty, ownership, citizenship and finally ethics and self-consciousness.

- If we collectively wish to do something better for the Nation and the society, and if our will-power is strong enough to handle all the situations, we can definitely do the things and achieve our goals and can make them sustainably, perpetually achieving for even up to life-time.
- For that our fundamentals must be clear, our sole must be honest, and our goal must be smart and achievable.
- Breaking the tasks structurally in to small systematic activities, and at the same time doing the activities collectively into the constructive team is the only smart way of executing any project, this we must put into the practice.
- Making the best use of technology, but applying our own smart mind is the best way of achieving something best in the life.
- Before putting anything into practice, we must make a full critical study about all the factors affecting to that task, is another smart way of doing the work.
- Never be afraid of anything and never be hesitating for doing good things and never be resisting for accepting the truths and disclosing the wrong, unethical things happening surrounding to us. Be bold and courageous, and at the same time be strong and determined in doing good things, accepting the good things, and adopting the good technologies, concepts and solutions.

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