EFFECTIVE GOVERNANCE USING THE SMAC TECHNOLOGY IN THE GOVERNMENT SERVICES OF ANDHRA PRADESH: A CASE STUDY ON PUBLIC DISTRIBUTION SYSTEM

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Abstract:
SMAC technologies are going to help in providing exchange of ideas and develop collaboration between government and citizens. SMAC, which is combined and integrated use of Social Media, Mobile, Analysis and Cloud computing, is very useful for providing E-Governance agility. This is the IT solution for increasing the agility of services provided by e-governance. It also increases efficiency of e-government bodies, lowering costs for public services and increases effect of IT investments. Even though having low budget for providing better service to the citizens and also implementing the welfare schemes effectively the Government of A.P had taken forward step to implement advanced technology in the government services.

State Government of Andhra Pradesh introduced the Public Distribution System in the year 1974. Main purpose is to control over the prices of the essential commodities and also distribute them to poorest of the poor. Huge amount was spent on the subsidies by the Government. Because of dummy cards, duplicate cards, weighing differences the real benefit is not reached to the beneficiaries. The purpose of introducing the SMAC Technology in Public Distribution System (PDS) is increasing the effectiveness of PDS. There is no study about the impact of SMAC Technology in PDS specifically in Nellore city. In this paper an attempt is made to know the impact of SMAC Technology in PDS. Therefore the purpose of this study reveals the impact of SMAC technology in PDS system.

Keywords: SMAC technology, Social, Mobile, Analytical, cloud, e-Governance Public Distribution System (PDS), Information Technology, Targeted Public Distribution System (TPDS), Fair Price Shops (FPS)

INTRODUCTION
With the innovation of new technologies and the customer needs IT industry restructuring their services regularly. There are five eras in service providing by IT industry. They are, mainframe era, mini-computing era, personal computer client-server era and the Web era. Present we are in fifth wave. This fifth wave is characterized by a new master IT architecture comprised of social, mobile, analytics and...
Social media is one of the most effective communication areas. With this technology, information reaches to the public very fast. Mock sharing is possible with this technology. Barriers in transforming the knowledge are overcome with this technology that encourages a rapid exchange of collaborative information which can boost the results. At present, it becomes a tool in shaping the decisions as well as services of the government.

Mobility devices have changed the people to update the technology. With the innovation of mobile device, new ideas are generated to provide better service to the public by the government. This concept is called as m Governance. Smartphones and tablets are acting like mini computers with this all the works which are performed through desktop/laptops can be done with the help of these devices. Because of this reason the citizens are shifting from computers to smartphones and tablets. The name itself highlights the mobility, users can obtain data on the go without having to be stationed at a fixed location.

Analytics cannot be used as raw data by the government. When data is analyzed and converted into information it will help the government to innovate new welfare schemes and effectively implement the existing schemes.

Cloud is one of the effective method to store the data. It shares the data both internally and externally effectively. Because of the speed and transparency, Cloud Computing becomes important. For information security, cost effectiveness and less capital investment government sectors are giving importance to cloud computing.

Table-1: Information Technology Growth

<table>
<thead>
<tr>
<th>IT Era</th>
<th>Dates approximate</th>
<th>Computers approximate</th>
<th>Applications approximate</th>
<th>Users approximate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainframe</td>
<td>1950-1965</td>
<td>~100,000</td>
<td>Thousands</td>
<td>Millions</td>
</tr>
<tr>
<td>Mini-Computing</td>
<td>1965-1980</td>
<td>~10M</td>
<td>Thousands</td>
<td>Tens of millions</td>
</tr>
<tr>
<td>PC &amp; Client/Server</td>
<td>1980-1995</td>
<td>~100M</td>
<td>Tens of thousands</td>
<td>Hundreds of millions</td>
</tr>
<tr>
<td>Internet (Web)</td>
<td>1995-2010</td>
<td>~1B</td>
<td>Hundreds of thousands</td>
<td>Billions</td>
</tr>
<tr>
<td>SMAC</td>
<td>2010-2025?</td>
<td>Tens of billions</td>
<td>Millions</td>
<td>Billions</td>
</tr>
</tbody>
</table>
PUBLIC DISTRIBUTION SYSTEM (PDS)

With a network of 4.78 lakhs of fair price shops (FPS) the India’s Public Distribution System (PDS) is the world's largest retail system. In the year 1951, the Indian PDS system was established. The FCI under the Food Corporations Act, 1964 was introduced by the Indian government to distribute foodgrains to the public throughout the country. As per the allocations fixed by the central government distribution of food grains to the state governments is the main responsibility of the FCI. Public distribution of food grains has been retained as deliberate social policy by India with the objectives of:

(i) With a reasonable price to provide food grains and other essential items to vulnerable sections of the society.

(ii) Regular check on the open market prices of various items.

(iii) To attempt socialization in the matter of distribution of essential commodities.

For distributing the essential commodities upto village level the government had taken a decision in the year 1978 to open a shop in every revenue village. Along with TPDS, Indian government introduced a number of schemes to further support the deprived such as Antyodaya Anna Yojana, Annapurna scheme, Sampoorna Gramin Rozgar Yojana, Midday Meal Scheme, wheat based nutrition program etc. All these schemes are used primarily to make the TPDS more focused and targeted towards the poor, to increase their employment opportunities, and to help to reduce the overstock of food grains in the central reserves.

Laws and Regulations governing TPDS:PDS started a general entitle scheme in 1940 after so many changes present it becomes as an act to provide a legal right to the poor for food . The details are described in Table-2.

<table>
<thead>
<tr>
<th>Evolution of PDS</th>
<th>Timeline</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDS</td>
<td>1940s</td>
<td>Launched as general entitlement scheme</td>
</tr>
<tr>
<td>TPDS</td>
<td>1997</td>
<td>PDS was revamped to target poor households</td>
</tr>
<tr>
<td>Antyodaya Anna Yojana</td>
<td>2000</td>
<td>Scheme launched to target the “poorest of the poor”</td>
</tr>
<tr>
<td>PDS Control Order</td>
<td>2001</td>
<td>Government notified this Order to administer TPDS</td>
</tr>
<tr>
<td>PUCL vs. Union of India</td>
<td>2001</td>
<td>Ongoing case in Supreme Court contending that “right to food” is a fundamental right</td>
</tr>
<tr>
<td>National Food Security Act</td>
<td>2013</td>
<td>Act to provide legal right to food to the poor</td>
</tr>
</tbody>
</table>

Source: secondary data.

Different programs are initiated by the government of India to eradicate the poverty. One of the best practice in that is PDS . The responsibility was shared between the Central and state governments. Procurement, storage, transportation and bulk allocation of food grains, etc are taken care by the Central Government. Every state is having their own distribution process. Setting up of FPSs owes its initiation to national food policy, whereas its implementation and responsibility was taken care by the state governments. Time to time guidelines from Central government is corresponding to the state government for the effective operation of the PDS. Identification of families below poverty
line, issue of ration cards, supervision and monitoring the functioning of FPSs and the operational responsibilities including allocation within the State, are taken care by the state government. The Food and Civil Supplies Department of the State Government is mainly entrusted with the task of monitoring PDS in the state.

In the year 1974 as per the companies Act 1956 the government of AP started the Andhra Pradesh State Civil Supplies Corporation Limited. The capital was fully contributed by the Government of Andhra Pradesh. The company consists of a minimum of 2 members and a maximum of 8 members as Board of Directors. The Government of AP appoints the Chairman and in the absence of such an appointment, the Commissioner of Civil Supplies is the Chairman of the Company. Generally, the Board consists of Officials and Non-officials that are appointed by the Government.

Presently the Board consists of the following members:

(i) Commissioner of Civil Supplies : Chairman
(ii) Vice Chairman & Managing Director : Director
(iii) Director of Civil Supplies : Director
(iv) Addl. Secretary (Finance) : Director

In all the 13 Districts there are 13 District offices. For distribution of Essential Commodities like rice, wheat, Palmolive oil and levy sugar the District Managers coordinates with the District Administration. Joint Collector is the Ex-Officio Executive Directors of the Corporation. Therefore under the administrative control of the Joint Collector District civil supply offices are working.

As per the guidelines by the Indian Government, the state government of Andhra Pradesh issued instructions that each and every village shall have separate F.P shop. The distance between FP shop and the card-holder residence should be less than 1 Km. Allotment of one FP shop for every 1650 people, whereas for the tribal area the limit is 1000 people. As such some Fair Price Shops may function uneconomically.

Total FPS in Nellore District is 1879, Nellore Mandal 172 and Nellore city 109. Total ration cards in Nellore District is 815896, Nellore Mandal 128230 and Nellore city 93144. Total rice distributed in the month of July 2016 is 108450.6 Quintal for Nellore District and in Nellore Mandal 17556.68 Quintal and Nellore city 12753 Quintal.

**Review of Literature**

In November 2005 SMS Movement monitoring module started in PDS system. The abstract reports are drill-downed up to lorry-wise with Date-wise, FSD-wise, MLSP-wise, scheme-wise that are prepared by CGG. Based on SMS record transport payments are calculated. At MLSP, electronic receipt of stocks to be done by handheld data instrument based on SMS sent from DMO through CGG programme to eliminate manual role in data entry and thereby scope for any errors.

To deliver better service to the citizen’s, government of Andhra Pradesh initiated SMAC technologies. The project carried out by government of Andhra Pradesh uses collected data of "At Mint’s Enterprise Technology Summit 2014" on 26 February
Mr. J. Satyanarayana, secretary, department of electronics and information technology (IT) of A.P said that for the next stage of e-governance the state government of Andhra Pradesh planning to implement the social, mobile, analytics and cloud (SMAC) technologies for effective governing.

The term E-Governance is self-explanatory indicating that it is technology driven governance. It is the application of Information, Communication, Technology and Networking for services based on government policies to provide facilities. It includes information transactions and services between Government to Consumer (G2C), Government to Business (G2B), Government to Government (G2G) and other interactions of entire government framework. The framework also provides transparent, efficient and convenient services of government to citizens in a distributed manner. But, the current model and standard of E-Governance are not useful enough to provide better services of e-governance as they evolve complex and slower procedures. This leads to applying SMAC tools and techniques to functional aspects of e-governance which provides agility to the services of e-governance. There are many state governments of India who have started moving e-governance in the SMAC way. The new generation of e-governance will be known as EGP (E-Governance) 2.0 or e-kranti.

JUSTICE WADHWA COMMITTEE ON PUBLIC DISTRIBUTION SYSTEM, ANDHRA PRADESH in 10th July 2009 in their report said that bogus cards are the main issue in leakage of the PDS system. According to Dr. Deepak Malghanand Nikhil Borale & Pawan Ramteke also highlighted that the leakage causes in PDS system are bogus cards, duplication of the cards and weighing differences in the delivery of the commodities to the public. After the conferences with the state and UT food Ministers and Secretaries in July 2006, a nine-point action plan was developed in that they suggested the introduction of Information Technology in the PDS like web portal introduction and computerization of TPDS.

NEED FOR THE STUDY:

The biggest ever data is the repository by the government. Transactions are double the size of the Indian population i.e., 2.85 billion transactions between citizens and government during last year which emphasizes the importance of the use of analytics. E-governance provides its services to citizens by using SMAC technologies. SMAC, which is combined and integrated use of Social Media, Mobile, Analysis and Cloud computing, is very useful for providing E-Governance agility. There are four technologies connected with each other and represents it as a single technology. This is the IT solution for increasing the agility of services provided by e-governance. It also increases the efficiency of e-government bodies, lowering costs for public services and increases the effect of IT investments. However, it is important to note that it would be quite difficult to adopt SMAC based e-governance if government IT cost budget is low, government IT infrastructure is low and not hard to attack, highly skilled IT resource persons are scarce and employees have insufficient IT knowledge. Even though having low budget for providing better service to the citizens and also implementing the welfare schemes effectively. The Government of A.P had taken forward step to implement advanced technology in the government services. The purpose of introducing the SMAC Technology in Public Distribution System (PDS) is increasing the effectiveness of PDS. There is no study about the impact of SMAC Technology in PDS specifically in Nellore city. In this research paper, an attempt
is made to explore the impact of SMAC Technology in PDS.

OBJECTIVES:
1) The Impact of SMAC TECHNOLOGY in increasing the transparency of the commodities delivery process in Public Distribution System.
2) The impact of SMAC TECHNOLOGY in identification of real beneficiary.

METHODOLOGY OF THE STUDY:
An appropriate methodology with systematic approach has been taken to get consistent result in this study. For this following research methodology and tools are applied to do so. The Primary data is collected from the selected beneficiaries through direct interview and structured questionnaire. The secondary Data is collected from the website of civil supplies corporation, Nellore district civil supplies corporation and different websites.

The total population is 93144 from that 930 (at 1 percentage from the population.) is taken a sample for study and the technique used for this is Convenient sample method. The Percentage method is used for the analysis.

DATA ANALYSIS AND INTERPRETATION:
Table.3 : ERADICATING THE DUPLICATE

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMAC technology eradicates duplication</td>
<td>823</td>
<td>107</td>
</tr>
<tr>
<td>Percentage</td>
<td>(88.44)</td>
<td>(11.56)</td>
</tr>
</tbody>
</table>

Source: primary data

The above table shows the opinion of the respondents regarding the eradication of the duplication of cards with the introduction of the SMAC technology 88.44 percentage of respondents say yes and 11.56 of the respondents say no.

Table.4 : WEIGHING IS CORRECT WITH INTRODUCTION OF SMAC TECHNOLOGY

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighing is correct with the introduction</td>
<td>883</td>
<td>47</td>
</tr>
<tr>
<td>SMAC technology</td>
<td>(94.93)</td>
<td>(5.07)</td>
</tr>
<tr>
<td>percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

The above table show that the opinion of the respondents regarding fraudulent weighing of the commodities. The respondents feel that the cases of fraud have reduced with the implementation of SMAC technology in PDS, 94.93 percentage of respondents says yes. Therefore With the introduction of SMAC technology real benefit is enjoyed by the public.
Table 5: EFFECTIVENESS OF THE PROCESS

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>With SMAC Technology</th>
<th>Without SMAC Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which process is Effective</td>
<td>743 (79.92)</td>
<td>187 (20.08)</td>
</tr>
<tr>
<td>percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

The above table shows the opinion of the respondents regarding which process is more effective, i.e., 79.92 percentage of respondents says PDS with SMAC technology process is effective and 20.08 percentage respondents say that PDS without SMAC technology is effective, it is observed that the respondents who are illiterate and old are not interested in SMAC technology.

Table 6: PROCESS OF DELIVERY

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>With SMAC Technology</th>
<th>Without SMAC Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which process takes less time to deliver the</td>
<td>657 (70.63)</td>
<td>273 (29.37)</td>
</tr>
<tr>
<td>commodities percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

The above table show the response regarding the time taken to supply the commodities, 70.63 percentage respondents say that with SMAC technology less time is taken, whereas 29.37 percentage respondents say that without SMAC technology less time is taken, it is observed that the biometric authentication takes a long time.

RECOMMENDATIONS AND CONCLUSIONS

According to the respondent's opinion about the impact of SMAC technology in the Public Distribution System, SMAC technology increases the transparency and also has a positive impact in identifying the real beneficiaries. However, it was found that the illiterate and the old age group are not aware of the uses of SMAC technology, they feel insecure to use SMAC Technology. Therefore it is suggested that it is better to create awareness about the SMAC Technology uses in PDS. It was also found that SMAC technology increases the efficiency in biometric authentication process.

Limitations of the study

- The study was restricted to Nellore city only
- The data is collected from beneficiaries only
- The study is restricted to FPS stage only
- This study is restricted to distribution of only rice

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