

an analytical study of transformation of cities into smart cities
(with special reference to jaipur city)

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**AN ANALYTICAL STUDY OF TRANSFORMATION OF CITIES INTO SMART CITIES
(With special reference to Jaipur city)**

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Abstract:

Jaipur is a city which is known for its traditions and heritages but since few decades it is been observed that people of nearby places are migrating to jaipur and so population of jaipur is rapidly increasing and as it is the capital of Rajasthan so it was needed to transform jaipur as SMART CITY. Government made many policies and plans to make the fundamental, safety, medical and other facilities powerful for the citizens. In this study we have tried to know the impact of these policies on its citizens.

Key Words: Transformation, Smart city, Fundamental facilities, Complexity, Digitalisation.

JEL Classification: O21, O22, Q55, M20, M38, N70,

Introduction:

The study examines the complexity of urban transformation concept and their effect on the citizens. Urban transformation refers to technological, economical, social development of the area. Government of india has design this program with some key factors and based urban transformation on infrastructural development as adequate water and electric supply, sanitation and waste management including solid waste, appropriate transport facility for public mobility, digitalisation, development of information technology, safety and security specially for women, children and elderly person's, health and education etc. these are the factors on which immediate action is required because the population of the urban area is rapidly increasing and the physical resources are not enough to fulfil the requirement then a need to utilise those resources smartly and economically arises.

The development of smart cities and the government planning and their strategies are the result of transformation of urban areas. Government's plans and programmes of smart cities and their implementation are helpful in growth either economic, women or childcare, education and infrastructure, lead to urban transformation. Smart city means smart technologies incorporated in the working of the city. On June 25, 2015, a mission to convert 100 cities into smart cities all over the country was started and for the development of smart cities Rs 4800 Cr was sanctioned. The concept of smart city undoubtedly raises the economy of the country. The idea of smart city became a mission and lead to urban transformation. Digitalisation is a prime and significant way to bring forward these cities and make them smart whether they are over populated. A smart city means imparting new technology in the same work. To make cities connected, supportable and more informed, smart cities is adopting new tech developing the power of communication tech. As the population is increasing rapidly in urban areas and the physical resources are not enough to fulfil the requirement then a need to utilise those resources smartly and economically arises. Then the concept of smart city appears and plans are made by the government and they are working well but here again few questions arise:

Are these programs really accelerating the growth of cities?

Are these programs sufficient to fulfil the needs of citizens?

A lot of work is done to generate employment, cities are actually transforming in view of infra development and lot of work on education development is done, The research will emphasise on the result of the efforts done by government and will analyse whether these programs are actually working at grassroots and contributing in national growth and national income.

This concept has made state Govt and their citizens more important and liberal. The new technology is being used to transform the delivery of public service, allowing greater interaction with citizens and providing them the opportunity to take part in decision making. Few foreign countries such as Netherlands and Taiwan have given some good projects to make India's cities' smarter.

Smart city is a mission for renewal of urban areas and retrofitting program by the government of India for the development of 100 cities all over the country with the objective to make their citizens sustainable and friendly.

Variables taken for study are:

- Infrastructural development
- Adequate water and electric supply
- Sanitation and waste management
- Appropriate transport facility for public mobility
- Digitalization
- Development of IT
- Safety and security especially for women, children and elderly person
- Education and health

Objectives of the study:

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Objectives of the current research are categorised as under:

- To study of plans and strategies made by government for the transformation of smart cities
- To analyse the impact of government programs and strategies on the transformation on smart cities

Review of literature:

Sujata Joshi, Saksham Saxena, Tanvi Godbole, Shreya (2016) published a paper on “Developing Smart Cities: An Integrated Framework”, In this paper draws on the city of Barcelona and intends to analyse its transformation from a traditional agglomeration to a twenty-first century metropolis. The case of Barcelona is of special interest due to its apparent desire, reflected by its current policies regarding urban planning, to be considered as a leading metropolis in Europe. Hence, an assessment of the Smart City initiative will cast light on the current status of Barcelona’s urban policy and its urban policy of Barcelona and its future directions. This article analyses Barcelona’s transformation in the areas of Smart City management; drivers, bottlenecks, conditions and assets. First, it presents the existing literature on Barcelona’s Smart City initiative. Then, the case study analysis is presented with the Barcelona Smart City model. After describing this model, we further explore the main components of the Smart City strategy of Barcelona in terms of Smart districts, living labs, initiatives, e-Services, infrastructures and Open Data. This paper also reveals certain benefits and challenges related to this initiative and its future directions.

Tuba Bakici (2012) stated that the base of smart city strategy is using information and technology. He specially stressed the fields like environment, economy, governance where the use of IT can transform the infrastructure of the city. This research was based on the transformation of Barcelona in smart city from a traditional agglomeration to a metropolis of twenty first century. The analysis of the study is presented in the form of a smart city model and further investigate main components of the strategy of smart city as e-services infrastructure, initiative and open data. This paper gave some advantages and disadvantages of this initiative in future also.

Brankica Milojenic (2012), stated main factors influencing urban transformation are population, policy, type of economy, planning for urban area, culture and politics. He gave importance to knowing urban transformation through the analysis of level of urban development with many aspects which create urban phenomena continuum of existing in space and time, including dynamic of changes. Local specifics of the area of urban transformation are related with the features of structures, space, local history, tradition, ambience or sports manifestation etc.

J.Vernon.Henderson (2005) emphasise on the forces that steer this transformation and the way of proceeding transformation and the potential traps and inefficiencies that may hinder it. It was also examines the matter of possible traps and incapacibilities under urbanisation. This model of rural urban transformation forced by economic and population growth. The research said transformation bring in the masses of population into cities. This study explores the working approach as a co-exploration of the study evolving existing and planned building in the region. The study is restricted to a region, The Orland region across southern Sweden and eastern demo.... Of a population of around 3-5 million people. This study focuses on the concept of living labs that how can they support governance in sustainable urban transformation in that particular region and even beyond. This

research suggest a deeper understanding in required to know the different sub-systems of urban area as physical, socio culture, and economic.

Research Methodology:

To fulfil the objective primary and secondary data will be taken and for actual feedback of the public, the sample size would be 100 citizens from the Jaipur of Rajasthan is collected.

The objective of the research is identify the policies and plans which are made for the development of urban area and to analyse the impact of those policies whether they are working accordingly.

The Research Methodology used for the study was a combination of Descriptive Survey and Field Survey. In the Field Survey the research instruments used for collecting primary data were: Questionnaire and Interviews. The questionnaire was sent across to 100 respondents who were the residents of Jaipur.

The study was confined to Rajasthan and therein Jaipur due to cost and time constraints

Analysis of the study:

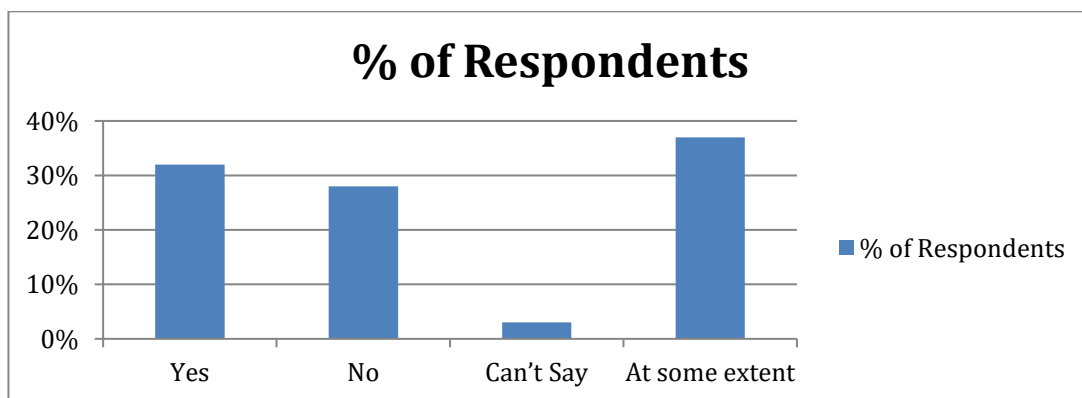
Table-1

The policies and strategies made for urban transformation are appropriate to make them smart city?

Response	No. of Respondents	% of Respondents
Yes	32	32%
No	28	28%
Can't Say	3	3%
At some extent	37	37%
Total	100	100%

Source: Survey

Figure-1



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When the question was asked to the people among them 32 respondents admits that the policies and strategies made for urban transformation are appropriate and working well but around 28 respondents strictly denied with this and believe that these policies are inappropriate for transformation of jaipur as smart city, around 37 respondents give their answer as may be appropriate and 3 respondents said that they are not aware about this so can't say anything about this.

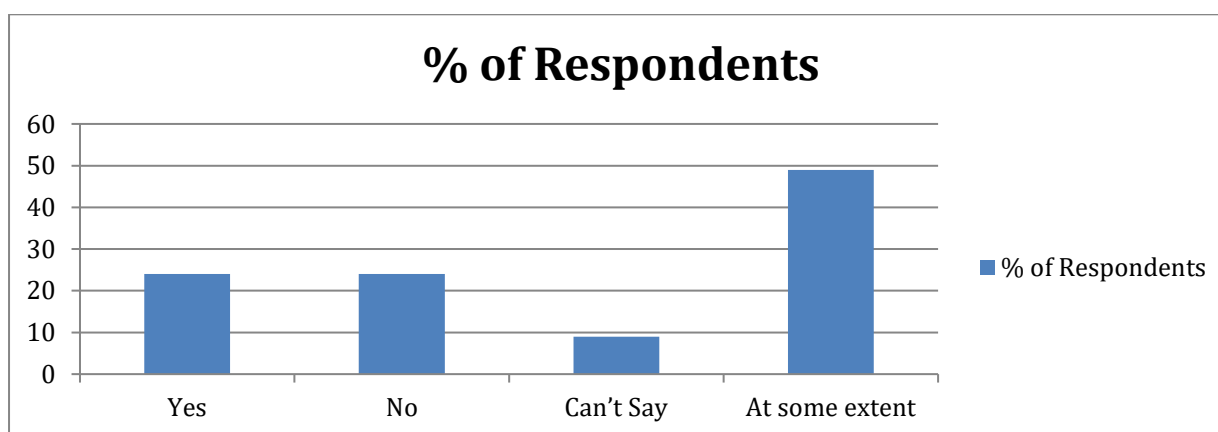
Table-2

Is the transformation in Jaipur city is recognised ?

Response	No. of Respondents	% of Respondents
Yes	39	39%
No	17	17%
Can't Say	6	6%
At some extent	38	38%
Total	100	100%

Source: Survey

Figure-2



In this question around 39 respondents give their answer as yes and believes that transformation is recognising in jaipur in various standards but around 17 respondents declined this claim and give their response as No whereas 38 respondents were not sure about this question and reluctant to give their response and 6 respondents said they are not aware about this so give their response as can't say.

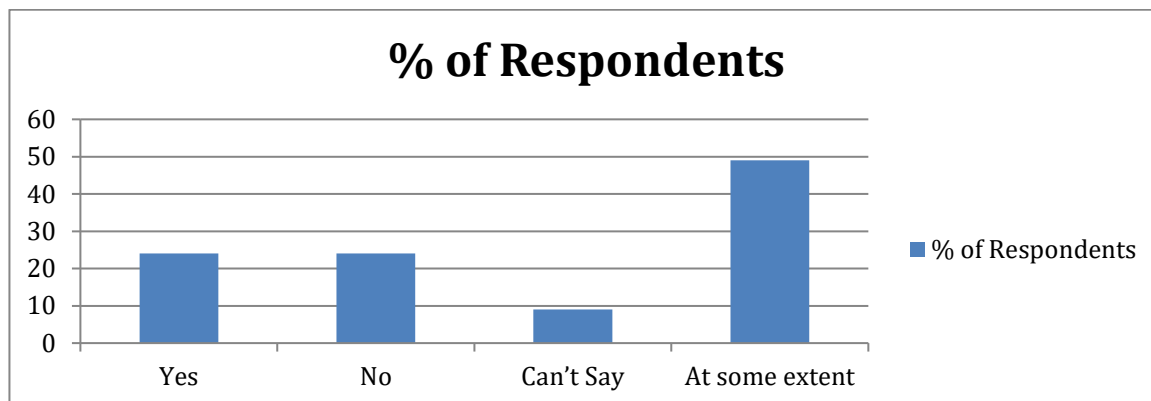
Table-3

Are the funds sanctioned for the transformation of cities to smart cities sufficient?

Response	No. of Respondents	% of Respondents
Yes	24	24%
No	24	24%
Can't Say	9	9%
At some extent	49	49%
Total	100	100%

Source: Survey

Figure-3



As the answer of this question the responses of around 24 respondents that the funds sanctioned for the transformation of jaipur city into smart city is sufficient but 24 respondents claims that this amount is insufficient for transformation of jaipur city. Whereas 49 respondents said that sanctioned amount may be appropriate if it is used efficiently and 9 people gave their response as they can't say anything in this matter.

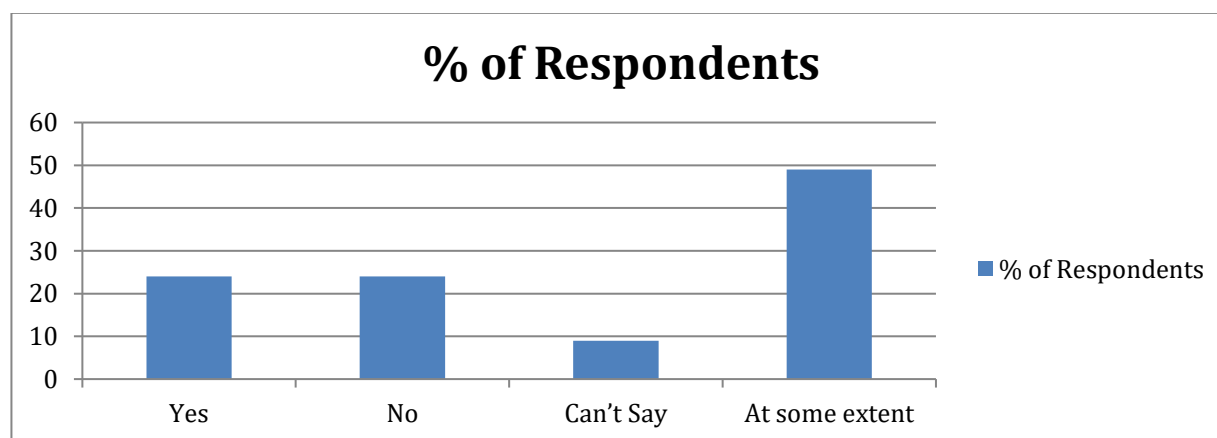
Table-4

Are the funds sanctioned for the transformation of cities to smart cities, appropriately used?

Response	No. of Respondents	% of Respondents
Yes	19	19%
No	43	43%
Can't Say	6	6%
At some extent	32	32%
Total	100	100%

Source: Survey

Figure-4



As the response of this question maximum responses come in NO category around 43 people said that the issued fund is not appropriately used and 19 respondents response in favour that issued

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amount is properly used whereas 32 respondents said this fund may be used properly and 6 respondents send their unawareness about this question.

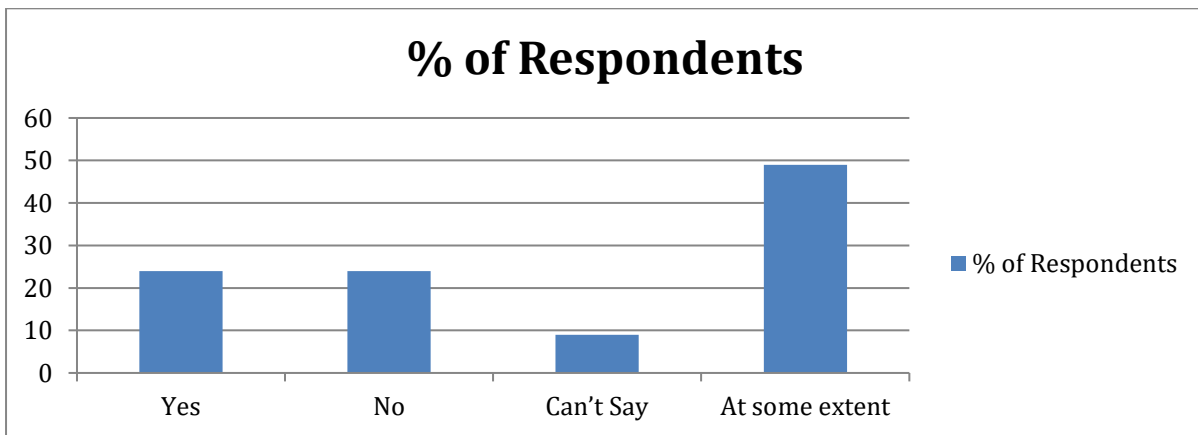
Table-5

Are these policies and transformation working for economic development of the country?

Response	No. of Respondents	% of Respondents
Yes	33	33%
No	35	35%
Can't Say	9	9%
At some extent	23	23%
Total	100	100%

Source: Survey

Figure-5



As the response of this question 33 response were in favour that these policies are working for economic development but 35 people denied this claim and give their response as NO whereas around 23 people said that these policies may be work for economic development of the country but again 9 responses were there who were not aware about the contribution of these policies in economic development.

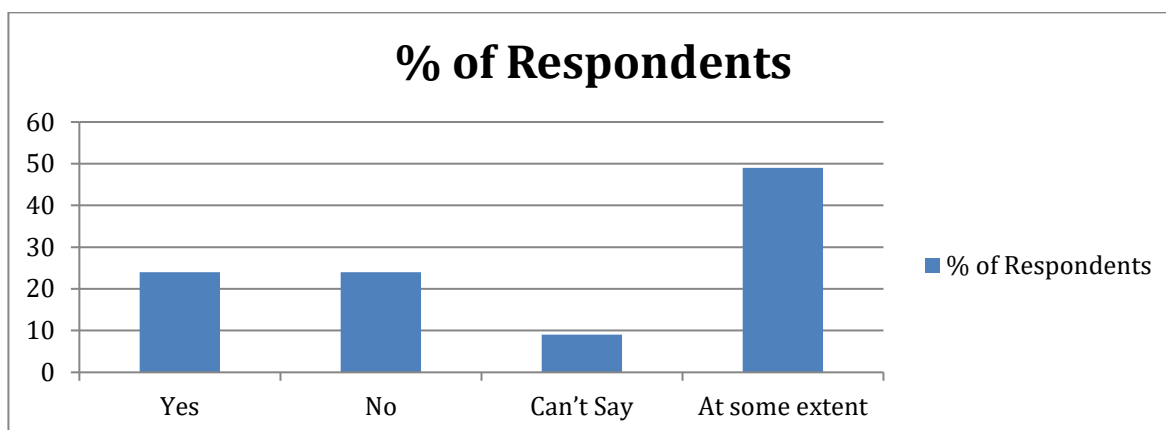
Table-6

Is the standard of life of citizens improving in Jaipur ?

Response	No. of Respondents	% of Respondents
Yes	43	43%
No	16	16%
Can't Say	3	3%
At some extent	38	38%
Total	100	100%

Source: Survey

Figure-6



Around 43 people respond in favour of this question and believe that the standard of living of the citizens of Jaipur is improving, they are leading a better life now but around 16 respondents do not agree with this claim and give their vote in no improvement in living standard of the citizens of Jaipur whereas 38 respondents said changes may be effecting the standards of lives of the citizens at some extent but still 3 percent respondents showed their unawareness regarding this.

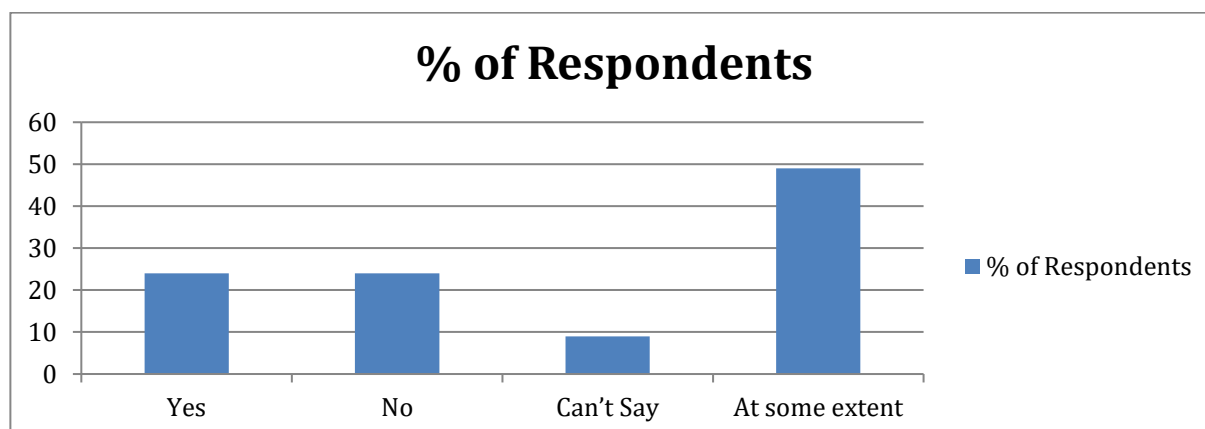
Table-7

Are the fundamental facilities are increased in Jaipur?

Response	No. of Respondents	% of Respondents
Yes	42	42%
No	17	17%
Can't Say	4	4%
At some extent	37	37%
Total	100	100%

Source: Survey

Figure-7



In the response of this question 42 respondents give their response as yes and believe that fundamental facilities in Jaipur are increased but 17 respondents denied this claim and said no fundamental facilities are increased and the conditions are same as before whereas around 37

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respondents said that at some extent these facilities are increased and a bit comfortable environment is developed but 4 respondents showed their ignorance in the matter.

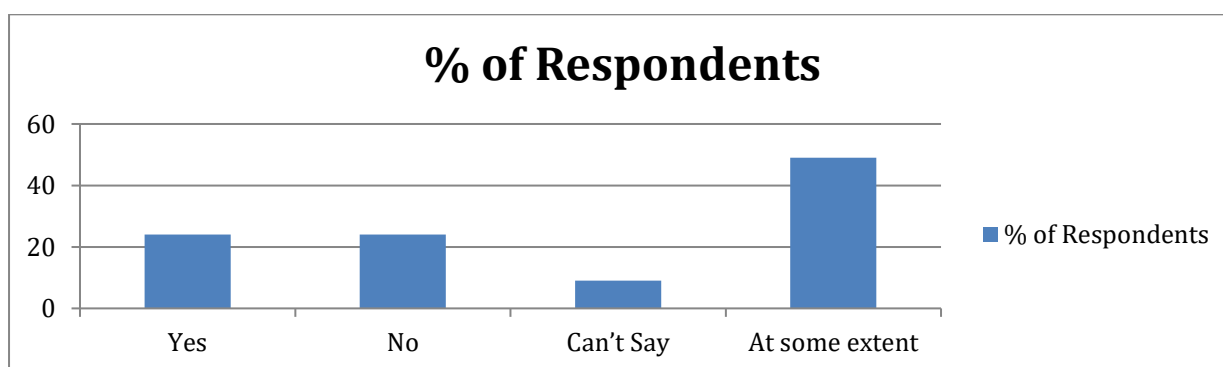
Table-8

Now, is Jaipur known as a smart city?

Response	No. of Respondents	% of Respondents
Yes	33	33%
No	32	32%
Can't Say	2	2%
At some extent	33	33%
Total	100	100%

Source: Survey

Figure-8



As a response of this question 33 respondents said yes and believes that jaipur is known smart city as the facilities and structure are increasing but 32 respondents decline this statement and believe that the provided facilities are not enough and we can't call jaipur a smart city. 2 respondents shown their unawareness about the question but around 33 respondents believe that at some extent we can favour this statement.

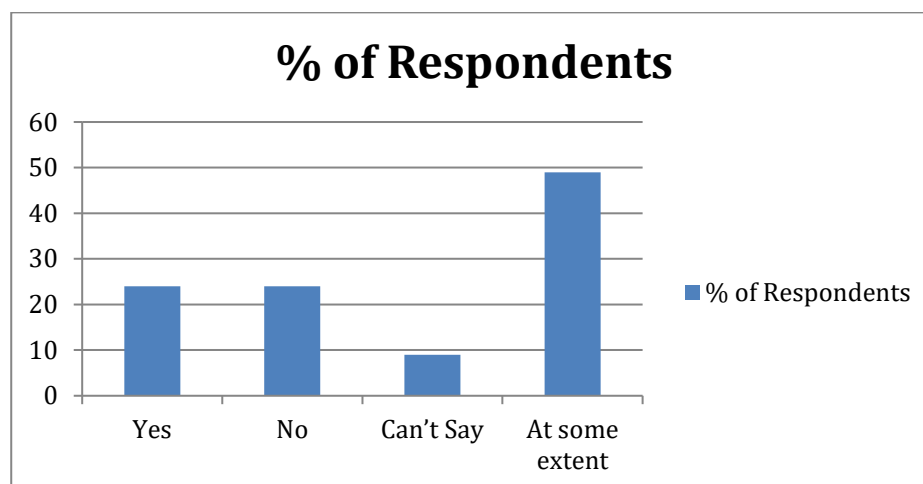
Table-9

Are the smart city's working for the educational betterment of women and girls?

Response	No. of Respondents	% of Respondents
Yes	32	32%
No	33	33%
Can't Say	6	6%
At some extent	29	29%
Total	100	100%

Source: Survey

Figure-9



As the response of this question around 32 respondents believes that the education standards for girls and women are improving and more opportunities for girls education is coming but 33 respondents said that there is no any change in education scenario for girls in jaipur whereas 29 respondents believes that education opportunities for girls and women are improved at some extent and education system is improved but still 6 people are there who didn't know anything about this

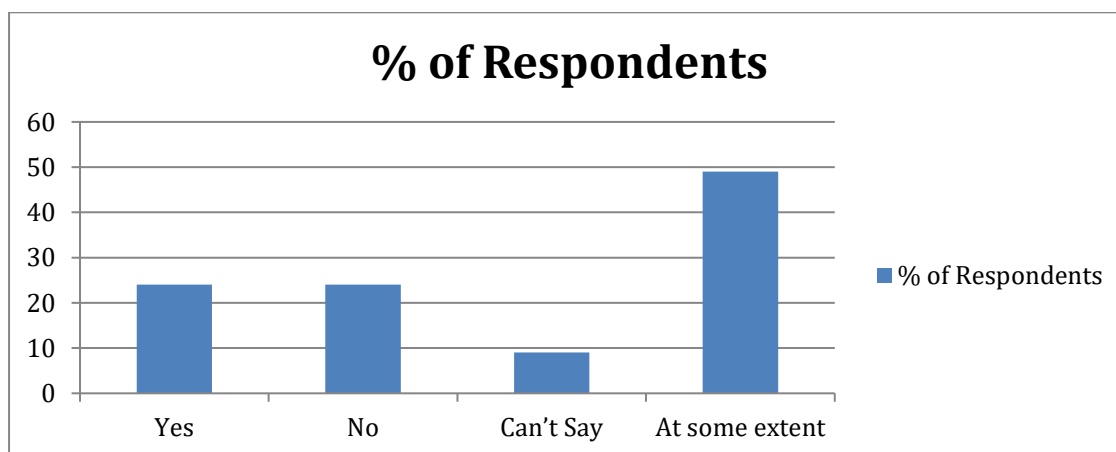
Table-10

Is this transformation working for betterment in medical facilities?

Response	No. of Respondents	% of Respondents
Yes	37	37%
No	39	39%
Can't Say	4	4%
At some extent	20	20%
Total	100	100%

Source: Survey

Figure-10



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As the response received of this question around 37 respondents gave their opinion as Yes and believe that the medical facilities are increasing and transformation is actually working in betterment of medical facilities in jaipur. Around 39 respondents does not believe that the medical facilities are increased in jaipur whereas 20 respondents responses that at some extent medical facilities in jaipur are improved 4 people are there who didn't know anything about it.

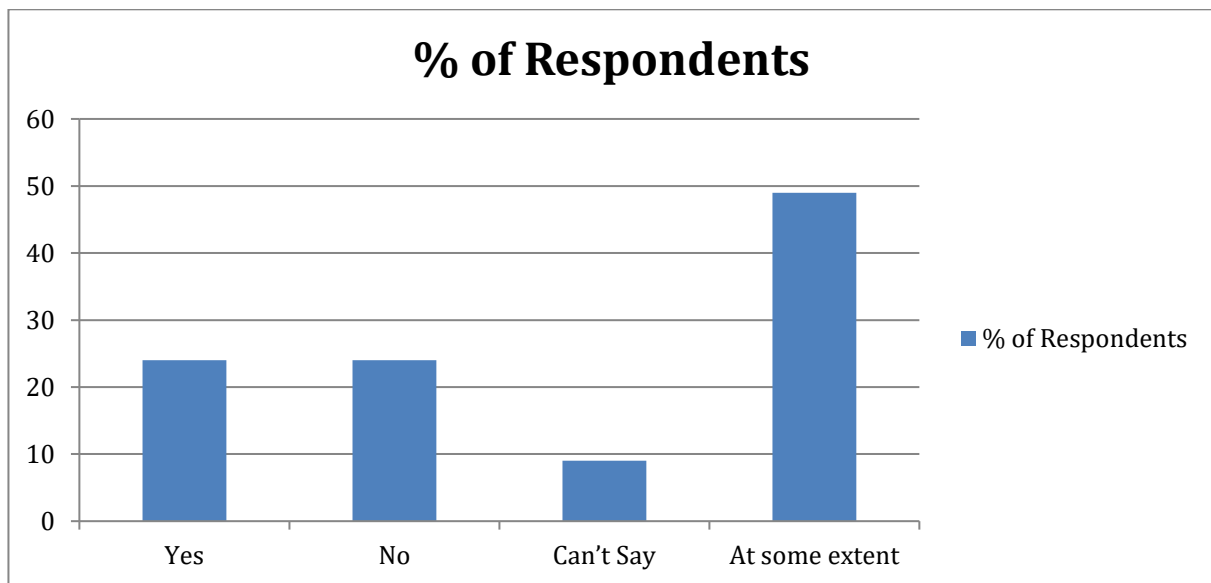
Table11

Are there sufficient provisions for elderly persons in smart cities?

Response	No. of Respondents	% of Respondents
Yes	22	22%
No	32	32%
Can't Say	7	7%
At some extent	39	39%
Total	100	100%

Source: Survey

Figure-11



In the response of this question only 22 respondents response that there are sufficient provisions for elderly persons in jaipur but 32 respondents vote in against of this statement and said that there are not sufficient provisions for elderly persons in the city. Around 39 respondents were there who were not sure but not against the statement and believe may be sufficient, may not be but 7 respondents were there who showed there unawareness about the statement.

Table-12

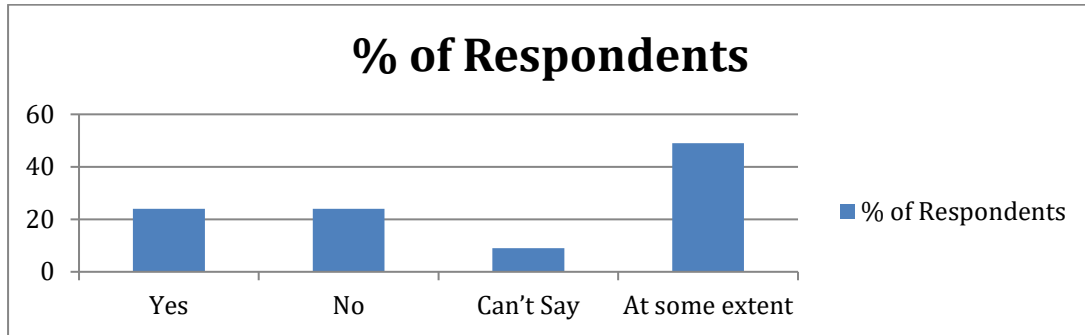
Are the provisions in smart cities sufficiently working for women and child safety?

Response	No. of Respondents	% of Respondents
Yes	19	19%

No	47	47%
Can't Say	3	3%
At some extent	31	31%
Total	100	100%

Source: Survey

Figure-12



Around 19 respondents' responses in favour of this statement that the provisions for women and child safety are sufficient and the safety standards are increased in jaipur but around 47 respondents denied the claim and said safety standards for women and child safety are no at all increased and they are not sufficient. 31 respondent's response that at some extent the safety standards improved but 3 respondents showed their unawareness regarding this question.

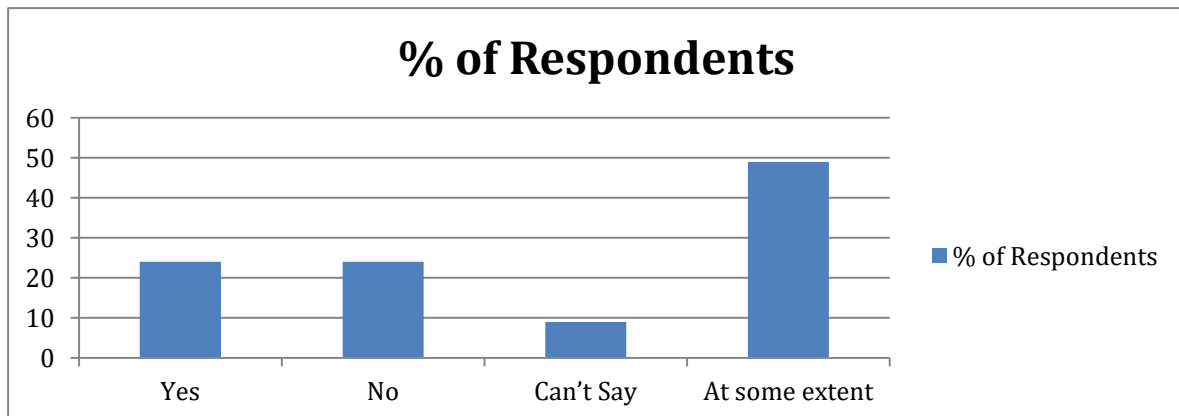
Table-13

Are the electric and water supply facilities improved ?

Response	No. of Respondents	% of Respondents
Yes	49	49%
No	36	36%
Can't Say	2	2%
At some extent	13	13%
Total	100	100%

Source: Survey

Figure-13



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The response of around 49 respondents that electric and water supply facility improve in the city and 36 respondents gave their opinion an No and believed that electric and water supply facility is not improved in the jaipur city. 13 respondents were there who were not sure and don't have clear response and said may be at some extent these facilities are improved and 2 respondents shown their unawareness about the question.

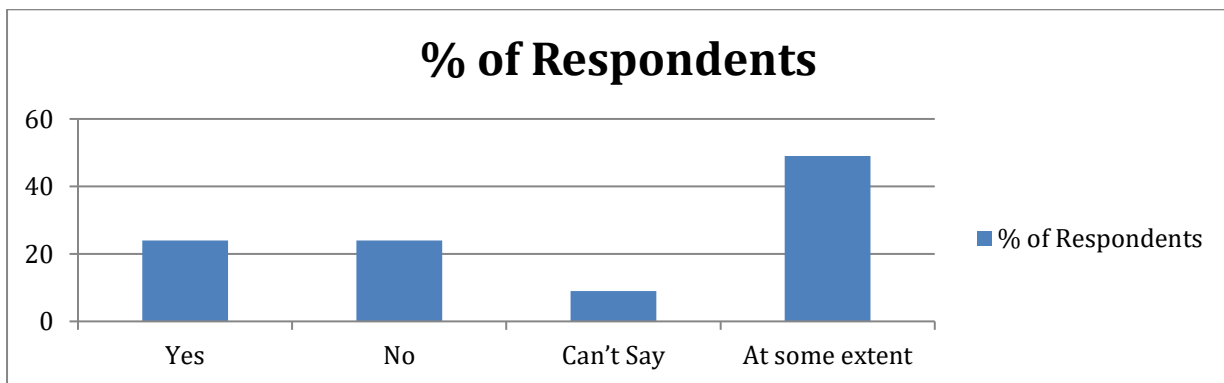
Table-14

Are the problem of waste management is solved?

Response	No. of Respondents	% of Respondents
Yes	18	
No	53	
Can't Say	6	
At some extent	23	
Total	100	100%

Source: Survey

Figure-14



As the response of this question only 18 respondents said as Yes and claim that problem of management of waste is solved but around 53 respondents strictly denied that the problem of waste management is solved whereas 35 respondents were there who were reluctant to give the response in Yes or No so respond in may be or may not be .

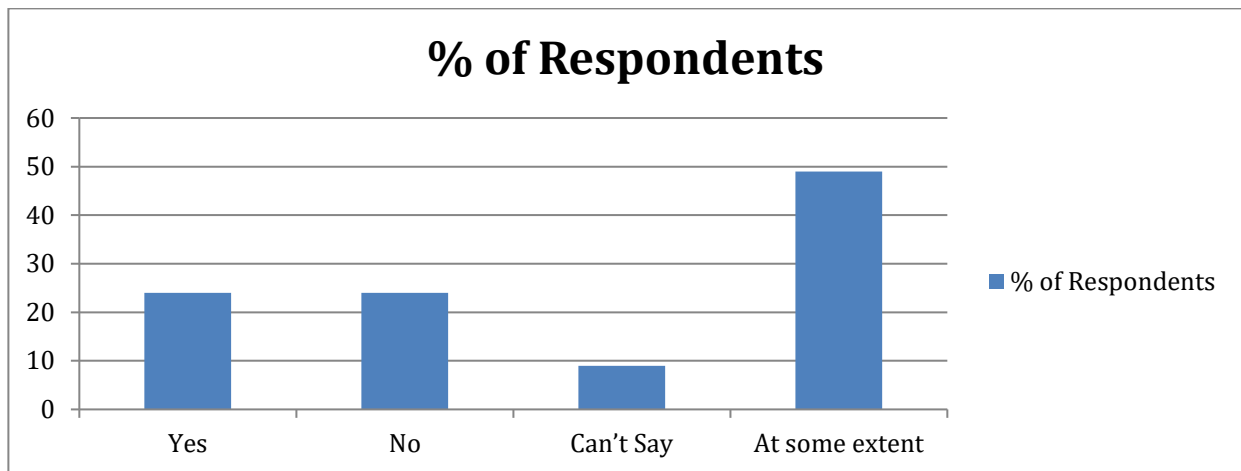
Table-15

Are the employment opportunities increased in jaipur?

Response	No. of Respondents	% of Respondents
Yes	44	44%
No	31	31%
Can't Say	7	7%
At some extent	18	18%
Total	100	100%

Source: Survey

Figure-15



As the response of this question around 44 respondents said that the employment opportunities increased in Jaipur and there is an increment in employment opportunities but around 31 respondents denied this statement and do not believe that the employment opportunities increased in Jaipur. Around 18 respondents believe that at some extent opportunities are increased and 7 respondents did not give the response of this question.

Conclusion:

After the study of this topic it was observed that Jaipur is turning as SMART CITY and no doubt education, safety, fundamental facilities, standard of life, transport facilities etc are increasing and so job opportunities are also increasing which are contributing in economic growth of the city. The higher percentage of respondents are in favour of this that Jaipur is turning in smart city but the other side some responses are against this topic and believe that the working towards the transformation is not proper and not at all transformation is seen in the city and the conditions are same as earlier even after got the sanctioned amount for the development. Some respondents believe that either the sanctioned amount is not sufficient or it is not properly used at right places. As the response of few questions higher percentage of responses are in disagree of the statement and said no. waste management safety of girls and women and improvement of medical facilities are the questions. Still few people are there who are not aware about the topic and asked questions but the number of this type people are very low so it might not effect the reliability of the study.

In this study questionnaire were sent to 107 people to receive at least 100 responses and received the same.

It is believed by the researcher with observation method that the outcome would show that in field of education the work is done by the Govt. till the date does not sufficient as still quality education is lacking and transformation does not work for employment generation and specially safety of women and girls. Although under make in India programme a large no. of start-ups schemes were introduced but they are not properly utilised by citizens. In the perspective of women and child development govt is making a lot of policies and they are working as well but still for safety and security they are not up to the mark.

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After gone through the topic with a strong observation and the responses of respondents it is seen that the changes are taking place in jaipur but these are not sufficient to transform jaipur into smart city. Few areas are still there where need more work to do. So as a conclusion of the researcher Jaipur is transforming but need some more time, efforts and money to reach at the level. Still there is a question that what are the causes restraining smart cities in transformation?

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Questionnaire

1. The policies and strategies made for urban transformation are appropriate to make them smart city?
1. Yes 2. No 3. Can not say 4. At some extent
2. Is the transformation in Jaipur city is recognised ?
1. Yes 2. No 3. Can not say 4. At some extent
3. Are the funds sanctioned for the transformation of cities to smart cities sufficient?
1. Yes 2. No 3. Can not say 4. May be
4. Are the funds sanctioned for the transformation of cities to smart cities, appropriately used?
1. Yes 2. No 3. Can not say 4. May be
5. Are these policies and transformation working for economic development of the country?
1. Yes 2. No 3. Can not say 4. At some extent
6. Is the standard of life of citizens improving in Jaipur ?
1. Yes 2. No 3. Can not say 4. At some extent
7. Are the fundamental facilities are increased in Jaipur?
1. Yes 2. No 3. Can not say 4. At some extent
8. Now, is Jaipur known as a smart city?
1. Yes 2. No 3. Can not say 4. May be
9. Are the smart city's working for the educational betterment of women and girls?
1. Yes 2. No 3. Can not say 4. May be
10. Is this transformation working for betterment in medical facilities?
1. Yes 2. No 3. Can not say 4. May be
11. Are there sufficient provisions for elderly persons in smart cities?
1. Yes 2. No 3. Can not say 4. May be
12. Are the provisions in smart cities sufficiently working for women and child safety?
1. Yes 2. No 3. Can not say 4. At some extent
13. Are the electric and water supply facilities improved?
1. Yes 2. No 3. Can not say 4. May be
14. Are the problem of waste management is solved?
1. Yes 2. No 3. Can not say 4. May be
15. Are the employment opportunities increased in jaipur?
1. Yes 2. No 3. Can not say 4. May be