SMART SUSTAINABLE CITIES

'Innovations, Sustainability Surveillance & Development'
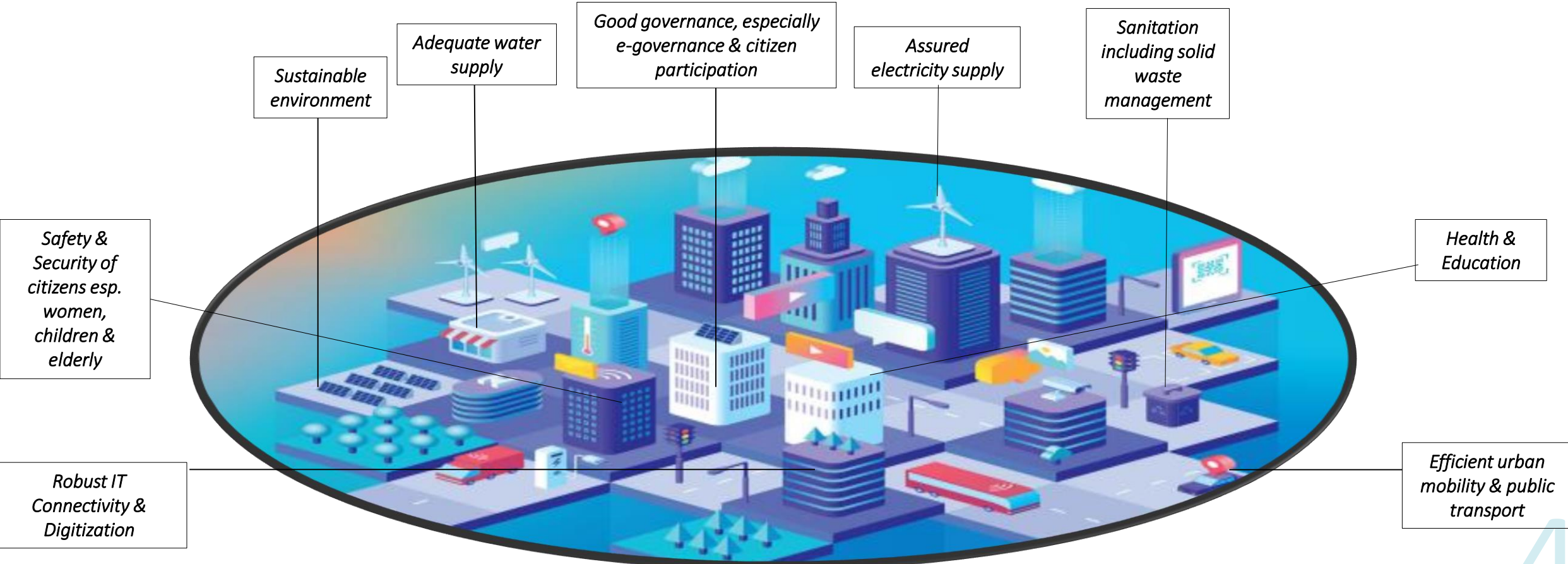

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By

Navin Chopra

CEO & Principal Consultant

Sustainability and Smart

Smart City - Need & Focus

Rapid & Unplanned Urbanization

Increasing pollution

Need to have Sustainability into Smart Cities

Climate change

Increasing population

Shrinking resources

Focus is on **Sustainable** & Inclusive Development, creating replicable models which will act like a lighthouse to other aspiring cities

OBJECTIVE OF SMART CITY
Promote cities that provide core infrastructure & give decent quality of life to its citizens, a **clean & sustainable environment** & application of smart solutions

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Sustainability Elements In Smart Cities

Sustainable environment

Adequate water supply

Good governance, especially e-governance & citizen participation

Assured electricity supply

Sanitation including solid waste management

Safety & Security of citizens esp. women, children & elderly

Health & Education

Robust IT Connectivity & Digitization

Efficient urban mobility & public transport

Illustration: iStockphoto

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Smart Features & Solutions

Robust IT Connectivity & Digitization

Hygiene and Sanitation :
- Solid waste management
- Waste water recycling

Sustained water solutions
- Adequate portable water
- Storm water re-use
- Rainwater harvesting
- Smart Metering

Smart Solutions

ILLUSTRATIVE LIST

E-Governance and Citizen Services
1. Public Information, Grievance Redressal
2. Electronic Service Delivery
3. Citizen Engagement
4. Citizens - City's Eyes and Ears
5. Video Crime Monitoring

Waste Management
6. Waste to Energy & fuel
7. Waste to Compost
8. Waste Water to be Treated
9. Recycling and Reduction of C&D Waste

Water Management
10. Smart Meters & Management
11. Leakage Identification, Preventive Maint.
12. Water Quality Monitoring

Energy Management
13. Smart Meters & Management
14. Renewable Sources of Energy
15. Energy Efficient & Green Buildings

Urban Mobility
16. Smart Parking
17. Intelligent Traffic Management
18. Integrated Multi-Modal Transport

Others
19. Tele-Medicine & Tele Education
20. Incubation/Trade Facilitation Centers
21. Skill Development Centers

Adequate Clean Power Solutions
- At least 10% Solar Power
- At least 80% Energy efficient & Green Buildings

- Pedestrian Friendly Pathways,
- Intelligent Traffic Management,
- Non-vehicle streets or zones,
- Energy efficient street lighting

- Innovative use of open spaces;
- Visible improvement in area

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Sustainable Initiatives By Smart Cities

Rajkot

First smart city in India to achieve IGBC Green Cities Platinum rating for the green initiatives being taken up in design & implementation. It covers efficient land use, water conservation, various infrastructural improvements w.r.t. water supply, energy efficiency, waste management, green cover etc.

Installation of LED Street lights in several Smart Cities

Monitoring of Environmental Parameters in several smart cities. These are implemented through environmental sensors.

The citizens of Surat have covered more than 7lakh Km on Chartered bikes saving almost 1.5 lakh Kgs of CO_2 from being released into atmosphere, equivalent to planting almost 25000 trees

Mangaluru

Promoting renewable sources of energy by setting up solar roof top projects on Govt. buildings & cooperatives. Target: 1088kW

Construction of footpaths, easy walkways & footover bridges have been undertaken under NMT to reduce vehicle dependency & pollution in Gujarat, Sikkim, Karnataka etc.

Pune

Pune Metro: Aluminium bodied metro rail coaches that are energy efficient (low carbon footprint), infrared fire detection unit

Coimbatore

Completed Lake rejuvination

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Sustainable Initiatives By Smart Cities

Roadblocks to Sustainable Development

External Climate Conditions

Lifestyle Pressures & Personal Aspirations

Process & Technology Limitations

Lack of Infrastructure

Population Density

Capacity Limitation

Physical Space Constraint

Funds Limitation

Resistance to Change

Lack of Structured Sustainability Plan And Effective Management Program

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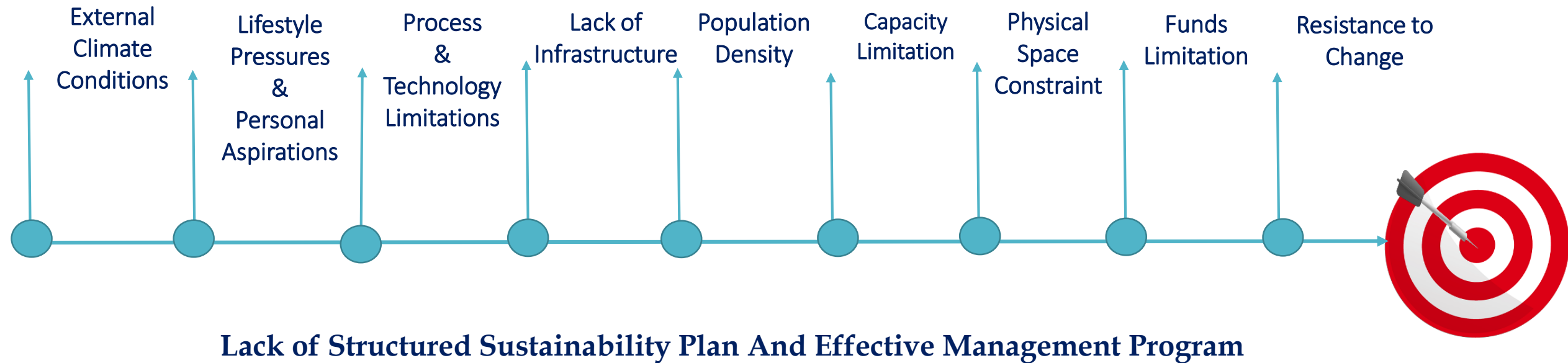
Recent Sustainable Launches

C3 (Climate Centre for Cities) launched on 25th June 2020

Cycles 4 Change launched on 10th July 2020

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"Climatesmart Cities" Assessment Framework

Assessment titles	CSC Score
Climate Champions	950-1000
Climate Leaders	750-949
Climate Emerging Leaders	450-749
Climate Initiators	250-449
Climate Beginners	0-249

"ClimateSMART Cities Assessment Framework"

Ministry of Housing and Urban Affairs initiated to:
- Provide a Clear Roadmap for Combating Climate Change
- Incentivize a holistic, climate responsive development in the 100 Smart Cities
- First-of-its-kind public assessment framework on climate-relevant parameters.

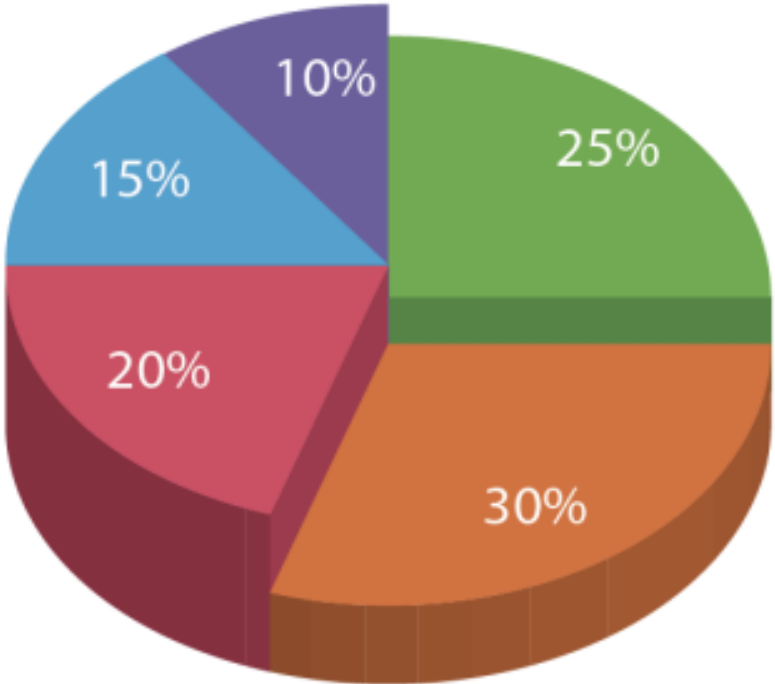| Energy & Green Buildings	Urban Planning, Green Cover, & Biodiversity	Mobility and Air Quality	Water Resource Management	Waste Management
1. Total electrical energy in city derived from renewable energy sources	1. Climate Action Plan	1. Low Carbon Mobility	1. Water Resources Assessment and Management	1. City demonstrates reduction of solid waste generation in last 5 years
2. Per capita and Per unit area electricity consumption for municipal services	2. Disaster Resilience	2. Low Carbon Shared Vehicles	2. Extent of Non-Revenue Water	2. Extent of recyclables recovered, and Segregated Combustible Fractions (SCF) / Refused Derived Fuel (RDF) Utilised
3. Per capita fossil fuel (Diesel, Petrol, CNG, LPG) consumption for municipal services*	3. Rejuvenation and Conservation of Urban Environment (water bodies, open spaces and built-up area)	3. Availability of Public Transport	3. Flood risk assessment and management	3. Recycled Aggregates (RA) and Recycled Concrete Aggregates (RCA) derived from City Construction and Demolition (C&D) waste are utilised.
4. Energy efficient street lighting in the city	4. Proportion of Green Cover	4. Percentage of coverage of Non-Motorized Transport network (pedestrian and bicycle) in the city	4. Wastewater Recycle and Reuse	4. Greenhouse Gases (GHGs) emission reduced due to improved Municipal Waste processing and treatment facilities
5. Level of compliance, implementation procedures and stakeholder co-operation in place for green buildings	5. Proportion of Native Tree Species	5. Clean Air Action Plan (Pollutants Monitoring, Planning and Implementation)	5. Energy-efficient wastewater management system in the city	5. Scientific Landfill is available with city as per SWM Rules, 2016
6. Percentage of buildings securing green building pre-certification and final certification up to minimum level	6. Urban Biodiversity	6. Level of Air Pollution	6. Energy-efficient water supply system in the city	6. Plan prepared and implemented for scientific landfill/ dumpsite closure considering GHG emissions

Sector-wise Weightage

Pie chart legend:

- 25% Urban Planning, Green cover & Biodiversity
- 30% Energy & Green Building
- 20% Mobility & Air Quality
- 15% Water Resource Management
- 10% Waste Management

Pie chart values: 25%, 30%, 20%, 15%, 10%

Icons:
ENERGY & GREEN BUILDINGS | URBAN PLANNING, GREEN COVER & BIODIVERSITY | MOBILITY & AIR QUALITY | WATER RESOURCE MANAGEMENT | WASTE MANAGEMENT

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Agile Sustainable Smart Cities

Baselining – Undertake a Baseline Assessment and Identify Operational sustainable initiatives

Awareness Enhancement – Establish & Enhance competence of the Core team

Document Framework - Facilitation development of Sustainability framework for the smart city aligned with smart City mission and SCPs

Deployment Facilitation – Facilitate execution of the identified sustainability initiatives

Review and Verification – To ensure effective deployment of the established plans, periodic reviews and verification shall be undertaken

Assessment – Undertake Assessment to the Climate Smart Cities Assessment Framework 2.0

01 Baselining
02 Awareness Enhancement
03 Document Framework
04 Deployment Facilitation
05 Review & Verification
06 Assessment

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Customized Business Solutions

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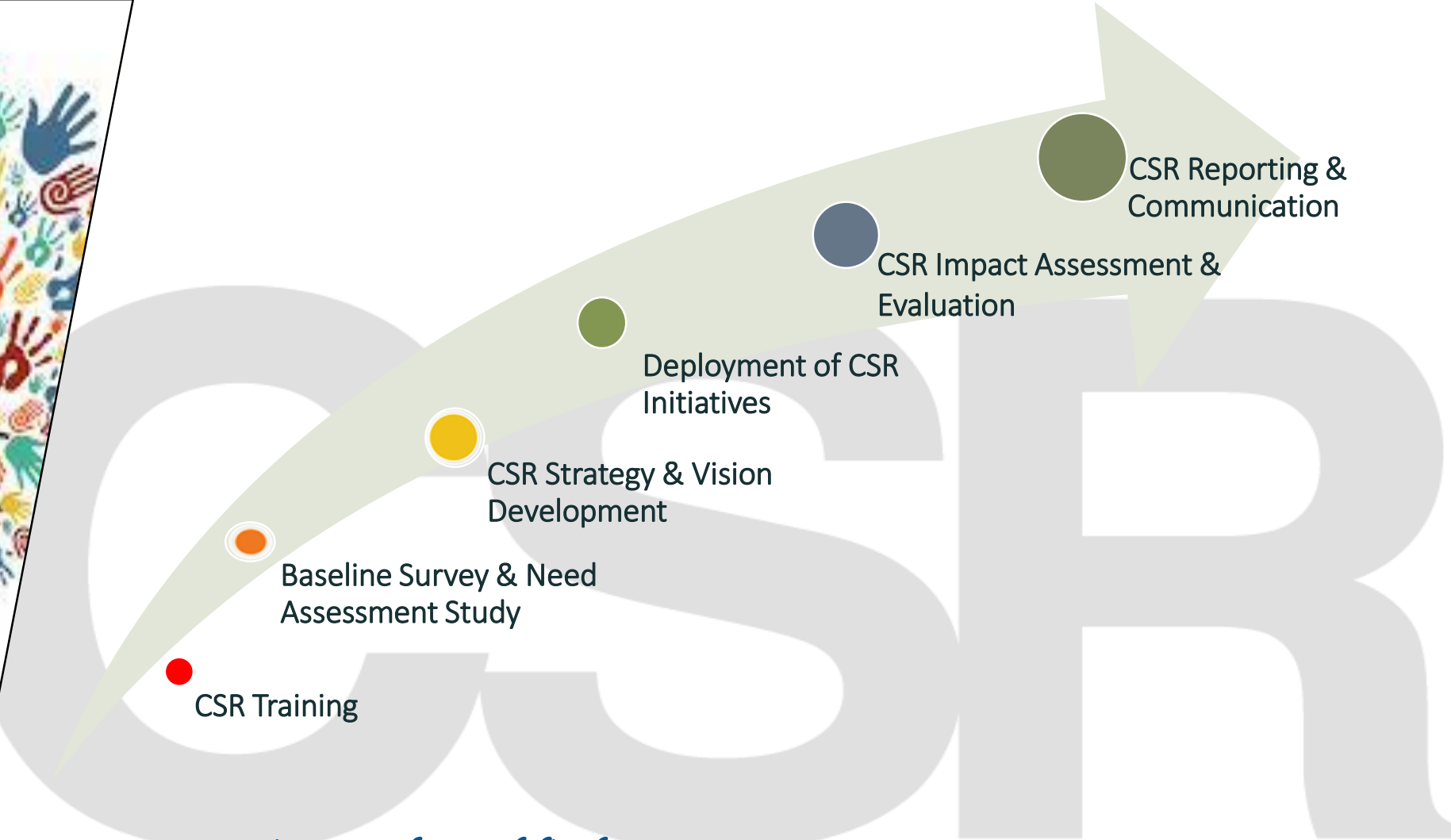Agile Group
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About AGILE GROUP

❖ Established in 2008, Agile Group comprises several complementary business lines, each one intensely focused on serving the needs of its target clients with technology-based expert knowledge services while leveraging the overall resources of the group; operational excellence - global infrastructure – capital.

❖ Agile Group offers Advisory, Training and Assessment services to organizations seeking higher operational effectiveness, greater flexibility and lower operating costs to gain a competitive advantage.

❖ Our Consultants and Auditors are mainly Post-Graduates from premier institutions with excellent blend of academic records and corporate experience.

❖ We nurture fresh talent and provide Research Opportunities to the meritorious students from premier academic institutions. A few of our joint research activities have found successful acceptance in the industry and have been published by leading international publishers. Agile Group has to its credit, publishing the first book on "Determination and Evaluation of Carbon Foot Print for the IT Industry".

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CSR Services

CSR Reporting & Communication

CSR Impact Assessment & Evaluation

Deployment of CSR Initiatives

CSR Strategy & Vision Development

Baseline Survey & Need Assessment Study

CSR Training

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Sustainability & Smart Cities

SUSTAINABILITY ADVISORY & REPORTING

SMART CITIES COMPLIANCE ADVISORY

SMART CITIES ASSESSMENT AND REPORTING

2nd PARTY SUSTAINABILITY AUDIT

BUSINESS RESPONSIBILITY REPORTING

PRODUCTS LIFE CYCLE ASSESSMENT

ENERGY AUDITS & REPORTING

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Climate Change and Water Security

- GHG INVENTORY QUANTIFICATION
- CARBON FOOTPRINTING
- CARBON NEUTRALITY
- CDP REPORTING & ADVISORY
- GHG INVENTORY AUDITS
- WATER FOOTPRINTING
- WATER BALANCING

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Information Security & IT Services

NETWORK VULNERABILTY MANAGEMENT

ITSMS DEPLOYMENT & ASSESSMENT ISO 20000-1:2011

IT COMPLIANCE MANAGEMENT

INFORMATION SECURITY

ISMS DEPLOYMENT & ASSESSMENT ISO 27001:2013

CYBER DEFENCE DEVELOPMENT

INCIDENT RESPONSE & MANAGEMENT

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Agile Management System Deployment Services

Agile Provides Training, Advisory and Auditing Services for Deployment of:

❑ Quality Management System ISO 9001:2015

❑ Environment Management System ISO 14001:2015

❑ Occupational Health and Safety Management System 18001:2007

❑ Information Security Management System ISO 27001:2013

❑ Business Continuity Management System ISO 22313:2012

❑ Energy Management System ISO 50001:2011

❑ Enterprise Risk Management System ISO 31000:2009

❑ Food Safety Management System ISO 22000:2005

❑ Responsible Care Management System (Chemical Industry)

❑ National Building Code Assessment

Agile Risk And Compliance Management Services

Enterprise Risk

Process Risk

Environment Risk

Information Security

Strategic & Operational Risk

Occupational Health & Safety Risk

Fire Safety Risk

Compliance Risk Assessment

National Building Code

SSAE 18 / SOC 1 & 2

HIPAA   GDPR

Risk Assessment & Management

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AGILE Values

A TRUSTED PARTNER

CUSTOMER CENTRIC

AGILE & RESPONSIVE

CONFIDENTIALITY & INTEGRITY

KAIZEN LEARNING

PASSION & EXCELLENCE

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Why AGILE?

Collaborative experience of more than 100 years

Certified Lead Auditors

Our Consultants have been Member to Standard Development and Review Committees

99% of CDP Reporting Accuracy

Global Recognition

Valuable relationship with clients

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Benefits Of Associating With AGILE

- ❖ Attract Capital/ Investors
- ❖ Enhance market reputation
- ❖ Stakeholders trust
- ❖ Employee Motivation

- ❖ Improved Operational and Financial Efficiency

- ❖ Sustainable Vision and Strategy
- ❖ Compliant Organization
- ❖ Established Management System

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Our Differentiators

Partnership Approach
We drive our success from the success of the clients

Our Motto
Be Swift and Responsive to the Changing Needs and Requirements of our customer

Dedicated Client Management
& Customized consulting solution to ensure 100% coverage of requirements.

Global Best Practices
International experience and exposure of our Consultants help share Global Best Practices

Speed and Accuracy
We work round the clock to provide on time service delivery with its perfection, exactness and validity intact.

Ongoing learning
Knowledge being the key differentiator, we ensure to update our professionals with the best knowledge of the industry

Our Proprietary Tools
Information Risk Assessment, Carbon Foot Print Calculator and *Fire Risk Compliance Assessment Toolkit* are most trusted

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Business Results - Redefined

Let's Aim Sustainable Smart-cities...

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