



Road Safety Innovations In India for India





Road Safety : Concern For all

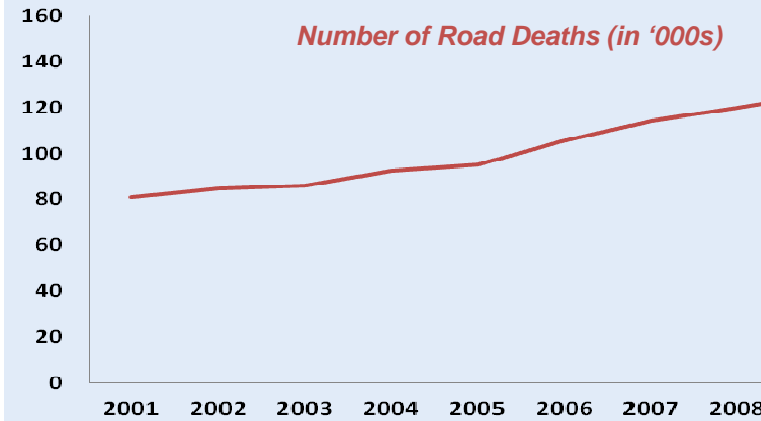
Where are we?

erred
cles
untries
%



Fact file

- 1 Accident / min
- 1 Death / 4 min
- Estimates in 2011:**
- 550000 Accidents
- 300000 Injured
- 145000 Road deaths
- Loss of productivity, Collateral Damage, Legal Expenses:**



Source: www.morth.nic



3 killed as lorry hits parked vehicle

Three Killed
Bangalore: Three persons were killed and five others were injured when a semi-trailer truck rammed a HRTC bus parked by the roadside near Kadurbanahalli in Helemane in the wee hours of Monday.
 The victims were standing over the bus that had been derailed when the lorry rammed the bus from behind. The three persons standing in front of the bus were run over. Both vehicles fell into a roadside ditch. Police said, the HRTC bus parked for city from Sreeper in that area and passengers were waiting for a replacement vehicle when the fatal crash took place around 4 am.
 The deceased have been identified as Koddi Anand 42, a silk trader from Sadashivan who was carrying over Rs 10 lakh cash, Ganji Rao 60 and his son Prithvi Raja 40, allives of Channarayana. He was carrying over Rs 20,000 in cash. The injuries were shifted to hospitals in Helemane and city.
 The bus had construction materials stowed. An alert security guard opened fire at once and killed the lorry driver. Construction material from a school under construction in Helemane in the wee hours of Monday around 12 midnight struck with wooden sticks landed into the compartment in Helemane. When the

India tops world in road deaths

13 Indians Die Every Hour Due To Accidents, Many Cases Not Reported

A TOLL TOO HIGH
 1,14,590 people died in road accidents in India (2007), highest in world.
 89,455 people died in road accidents in China (2006), the second highest in world.

million die each year on world's roads. Japan & Australia have strict rules with an average of 3.4 and 3.4 deaths per 1 lakh of world's road fatalities are in low & some countries, which have only 0.5 deaths per 1 lakh. In India, 13 people die each hour on roads. The victims are of pedestrians, cyclists and motorists. The victims are of pedestrians, cyclists and motorists. The victims are of pedestrians, cyclists and motorists.



Road Safety is a growing Concern-for-All !



Top Ten Global Burden of Disease (WHO, 2001)

Rank	Disease or Injury – 1990	Rank	Disease or Injury - 2020
1	Lower respiratory Infection	1	Ischaemic Heart Disease
2	HIV/AIDS	2	Unipolar Major Depression
3	Perinatal Condition	3	Road Traffic Accidents
4	Diarrhoeal Diseases	4	Cerebrovascular Disease
5	Unipolar Major Depression	5	Chronic Obstruction Pulmonary Diseases
6	Ischaemic Heart Disease	6	Lower respiratory Infection
7	Cerebrovascular Disease	7	Tuberculosis
8	Malaria	8	War
9	Road Traffic Accidents	9	Diarrhoeal Diseases
10	Chronic Obstruction Pulmonary Diseases	10	HIV/AIDS

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3M Innovations: Making Indian Roads Safer





3M. Where Innovation Never Stops.

3M is the **Global Innovation Company**
that makes progress possible.

We create **transformational** products and solutions that enable
customer success and **improve people's lives** around the world.

Our **collaborative, high-energy** approach helps solve the toughest
problems across industries and markets.



3M

Role of 3M in Improving Road Safety



Proven signage solution provider
for over 60 years

Pioneered the use of Optics
technology in road safety products



Solutions range from Signage to pavement
marking to vehicle safety to construction work
zone safety

More than 100 scientists,
researchers and technicians



How 3M innovates?

Understanding
customer needs

Bringing multiple
technology
platforms
together

Creating world
class innovative
products



Key Drivers for innovation in Road Safety products

Increasing road accidents/fatalities

Poor night time visibility

Higher Vehicular Speed

Low product durability

Vandalism

Changing needs require superior technology



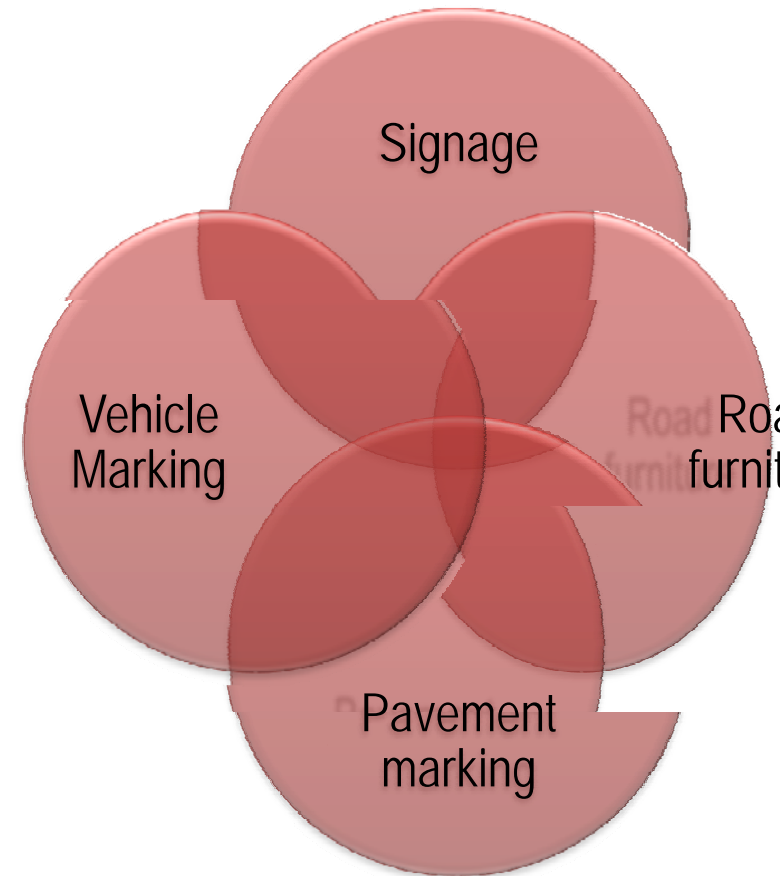
Purpose of Road Safety Devices

To communicate with the motorist
(Caution & Warn)

Relay information

In order to

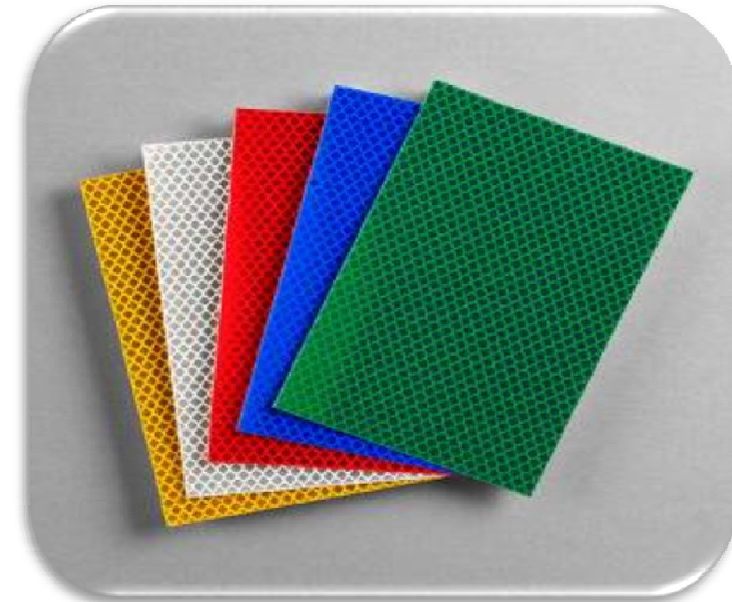
- Prevent Accidents



Signage

Concerns

Visibility
Legibility
Durability

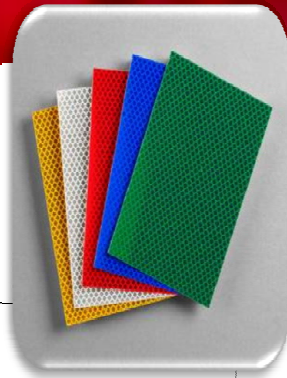


Diamond Grade Cube
(DG3) Reflective Sheeting



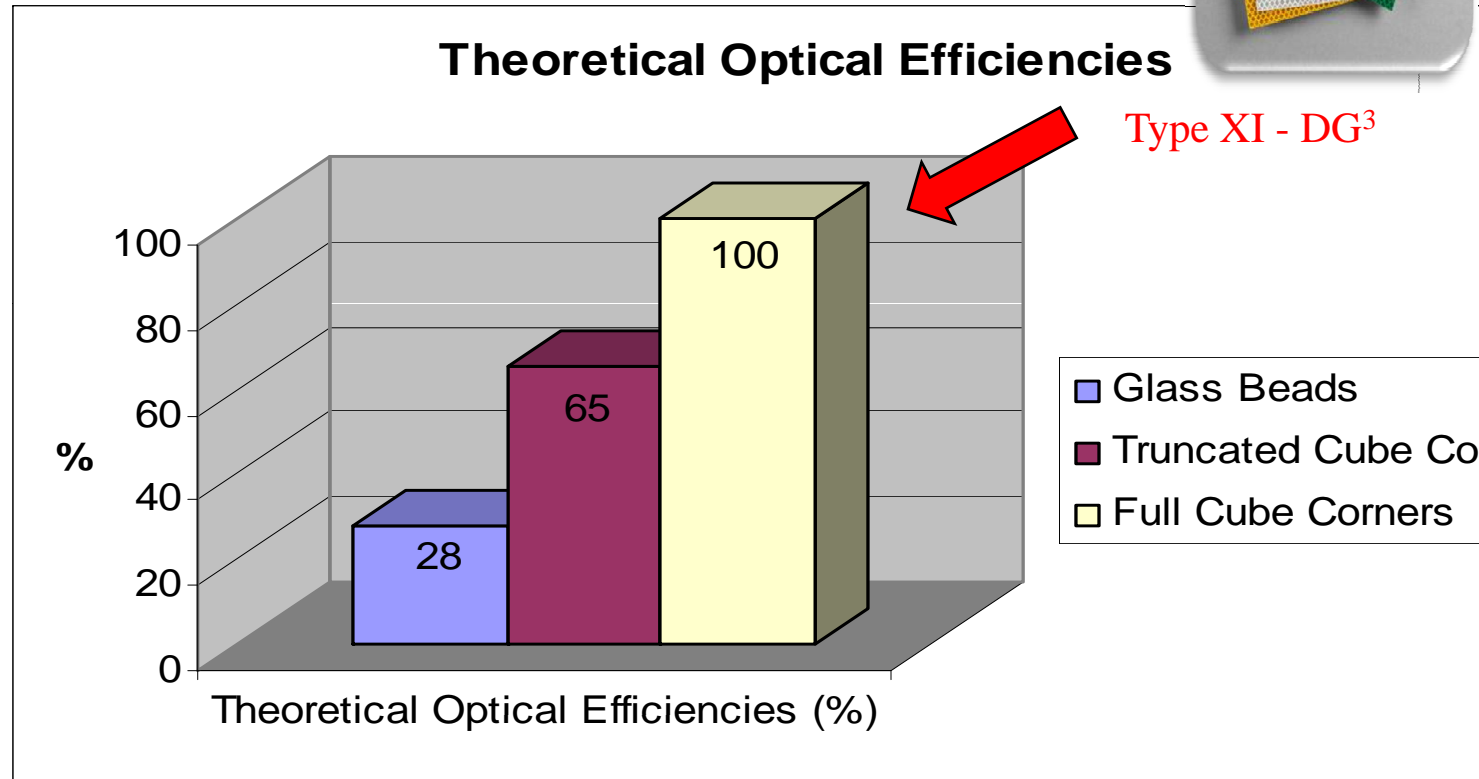
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Type XI – DG³ Reflective Sheeting



Features

65% full cube surface is reflected
in class sheeting for
observation angles
distance visibility
increases legibility



Full cube corner – most efficient retroreflective element



A Difference You Can See



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Pavement Marking

Concerns

Poor visibility
Breakage
Dislocation
Disorientation



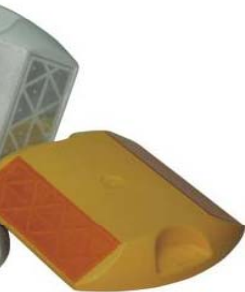
Moulded Shank RPM



Moulded Shank RPM(RPM/ Cat Eye/ Road Studs)



- RPM helps improve delineation along with road marking
- Application : Edge line and / or Centre / skip Line
- RPMs increase preview distances 2 to 3 times
- Performs even during rainy / foggy or extreme climatic condition



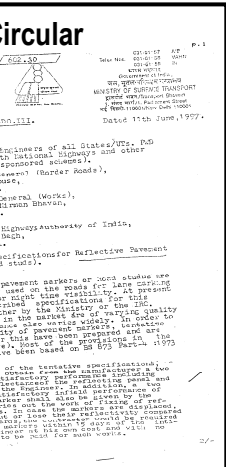
MORT&H Specs

- **Material of Body** : Plastic & no metal
- **Compressive Strength** : Min 13,635 Kg
- **Fixed by Using Adhesive** : No nails
- **Retro Reflective Area** : ≤ 13 Sqcm
- **Height** 20 mm & **Width** 130mm



3M Moulded Shank RPM

- **Body** : Polycarbonate & Completely Filled
- **Compressive Strength** : 16,000 Kg
- **Application** : Two moulded Shank improves durability
- **Colors** : White/ Red/ Yellow



Road Furniture

Concerns
Long distance Visibility
Visibility during inclement
weather
 vandalism
Installations on varied
surfaces
Non uniformity
Damage



Median Marker



Aluminum backed
Flexible Prismatic



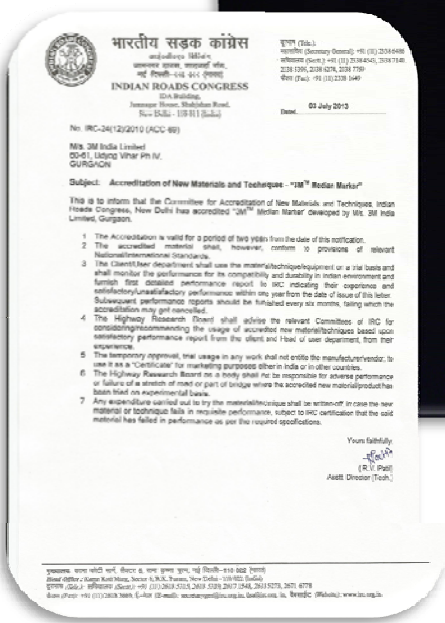
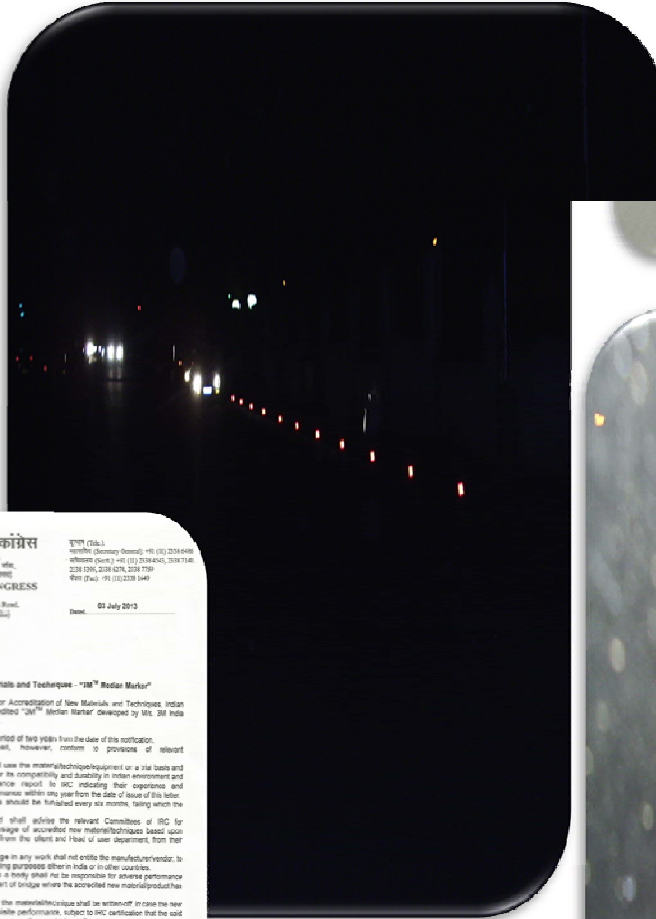
Vertical Delineator



Indian Marker

Features

- High thermoplastic body
- Excellent retro-reflectivity (DG³)
- Presence luminance
- Exposed edges
- Excellent weatherability
- Accredited



Aluminum Backed Flexible Prismatic (AFP)

- Non metallic Prismatic Type VI reflective sheeting
- Dead folding (takes any shape)
- Applied on any rough surfaces : tree trunks, concrete, metals, etc.
- Concealed edges
- Longer product life
- No resale value ; less chances of vandalism



Best Practice

White Paint
Reflective Plate
Hazard Marker



Improving Visibility

Use in a Roundabout at Haldwani, UP



At a Round About in Bangalore



Ghat Road, Ooty



Bull Nose at Toll Plaza



Vertical Delineator: Core & Shell Delineation device

rior reflectivity

- » Highly conspicuous during night
- » Reflective area
- » Easily commands attentions

ical shape

- » Increase entrance angle

& Shell construction

- » Sheeting edges inaccessible
- » Lower theft loss

S

er coated inner part

- » Prevent Corrosion

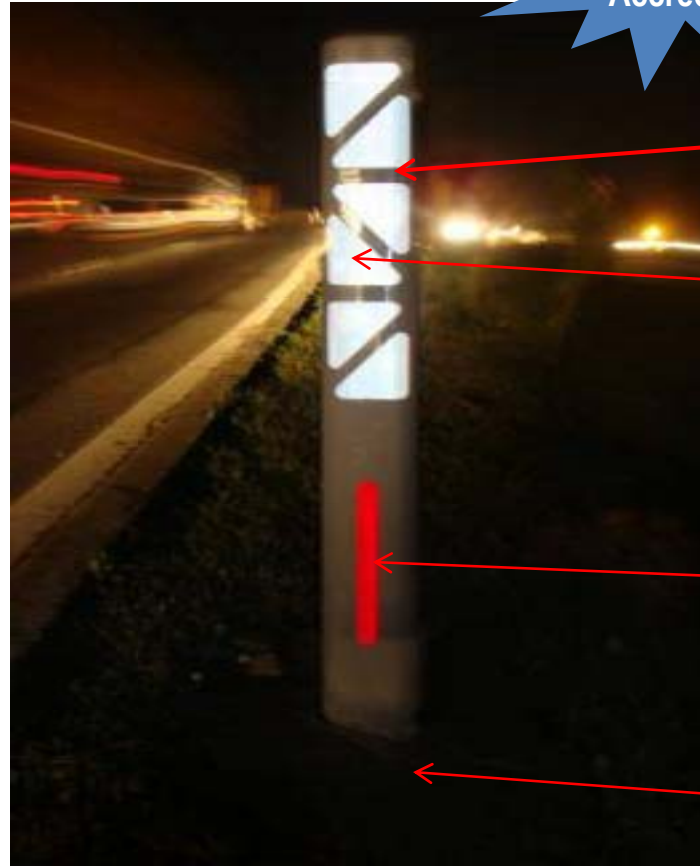
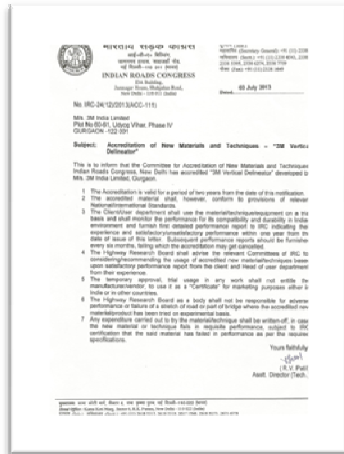
y engineered plastic outer sleeve

- » Impact withstanding

» Outdoor weather ability

CS

- » Enhance the overall appeal



Plastic o sleeve

White Retro-re sheeting

Red Retro-re sheeting

Powder coated inner

3M Vertical Delineator is a new age product which resolves major issues like long distance visibility, peeling off of reflective sheeting, corrosion, vandalism & durability



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Vehicle Marking

Concerns

Poor reflectivity
Corrosion
Vandalism
Lifting of edges



Diamond Grade
Conspicuity Tapes



Features

5 times brighter than conventional markings
Highly durable and non-corroding
Self-sealed
Superior reflectivity, even at angles up to 90 degrees
10 Year Warranty
DOT 190 approved



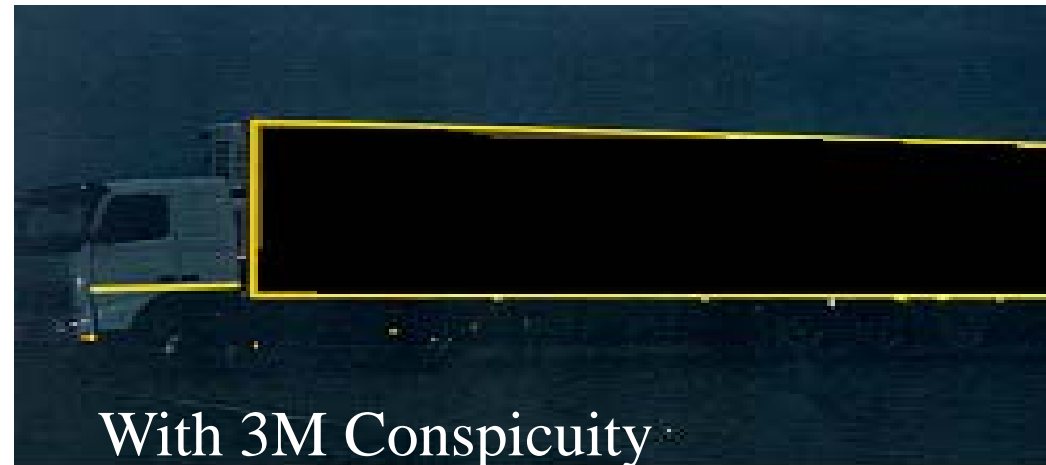
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A difference you can see



Without Conspicuity

Visibility of Vehicles by using
3M Conspicuity Sheeting



With 3M Conspicuity



***Innovation is not
an accident ...***

***it is driven by a system of
principles and practices which
support and encourage the
coupling of technology and
creativity to satisfy
customer needs.***





er in India's growth over 25 years.

ve are a company that addresses the unarticulated needs of
 consumer because of:

Deep understanding of what a consumer wants

Ability to adapt to local challenges

Our drive to create new product categories to solve problems



The Foundation Years

Planting the seeds of innovation

- Established in 1988
- Went Public
- Manufacturing for key sectors



The Growth Years

Building infrastructure, teams & relationships

- Added Manufacturing Capabilities
- Customer Technical Center established
- Acquisitions to build capabilities



The Period of Transformation & Growth

Expansion & Acceleration

- *In India for India* customer-centric approach drives go to market strategy
- Augmentation of R&D & Manufacturing capability
- Retail presence to build brand equity

3M in India Today

Positioned for Growth

Headquarters in Bangalore

4 Manufacturing Facilities

2 R&D centers with more than 120 research professionals

Branch offices in 6 cities

Market more than 8,000 products

2000+ employees

50+ patents filed

New Product Vitality Index of 37% (2012)

CAGR growth of 25%

Turnover of Rs 1,584.63 crores with profits of Rs 52.27 crores (March 31st, 2013)

Incorporated:

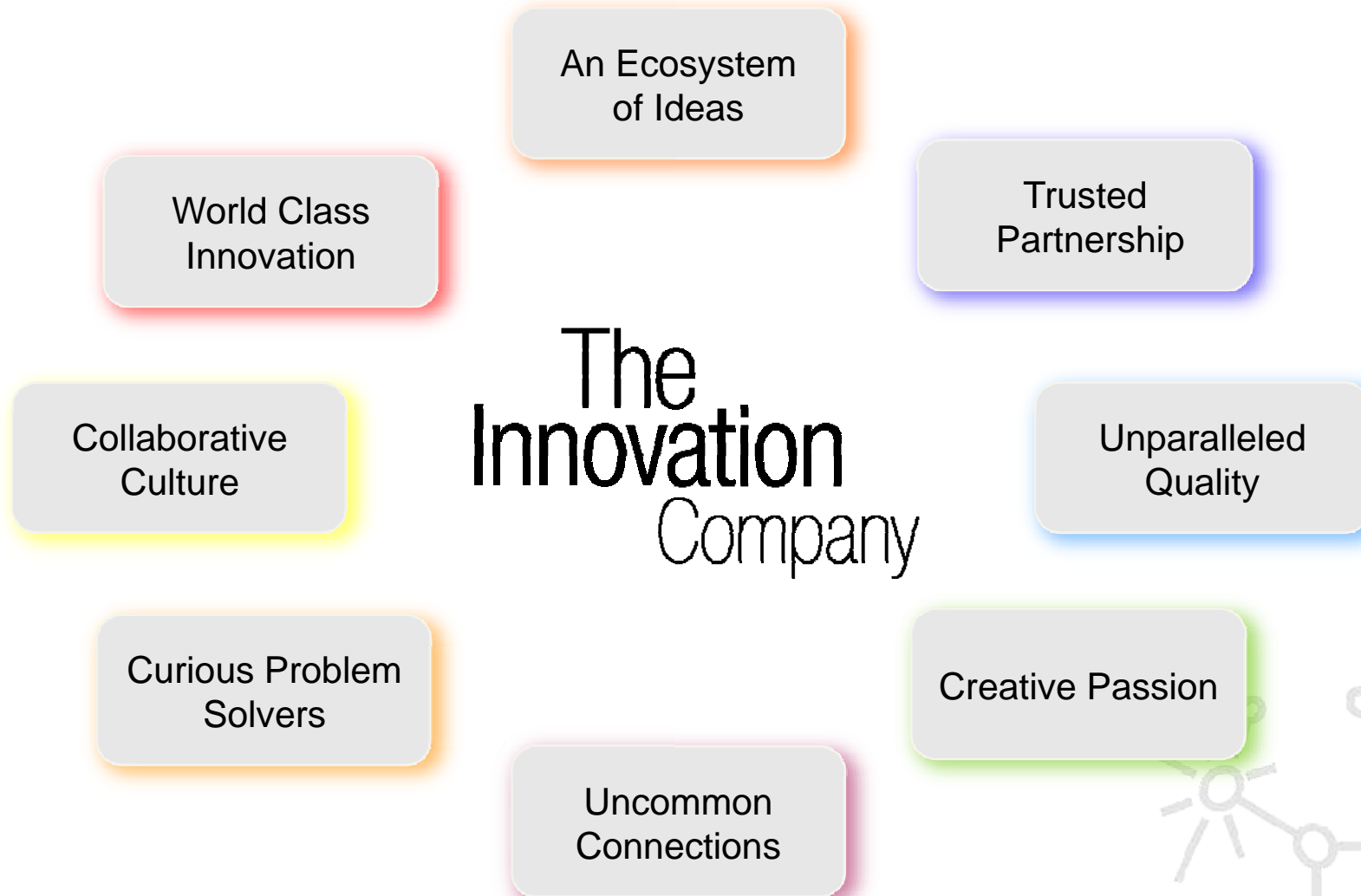
3M India – 1988 (3M Shareholding : 76% /100%)

3M E&C – 1999



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e 3M Opportunity





Our Vision

3M Technology Advancing Every Company
3M Products Enhancing Every Home
3M Innovation Improving Every Life

3M