

Creating and Sustaining Innovative Cultures

Sheng Thong Yin – Singapore R&D Centre



Working Our
Magic



What is the second item that touched the face of the moon?



1969 3M products are used in the first moon walk on July 20, 1968. Astronaut Neil Armstrong leaves a foot-print on lunar dust in boots made from Fluorel synthetic rubber from 3M.

Photo courtesy of NASA





Technology

Creativity
*(Thinking of
New Things)*

Customer Need

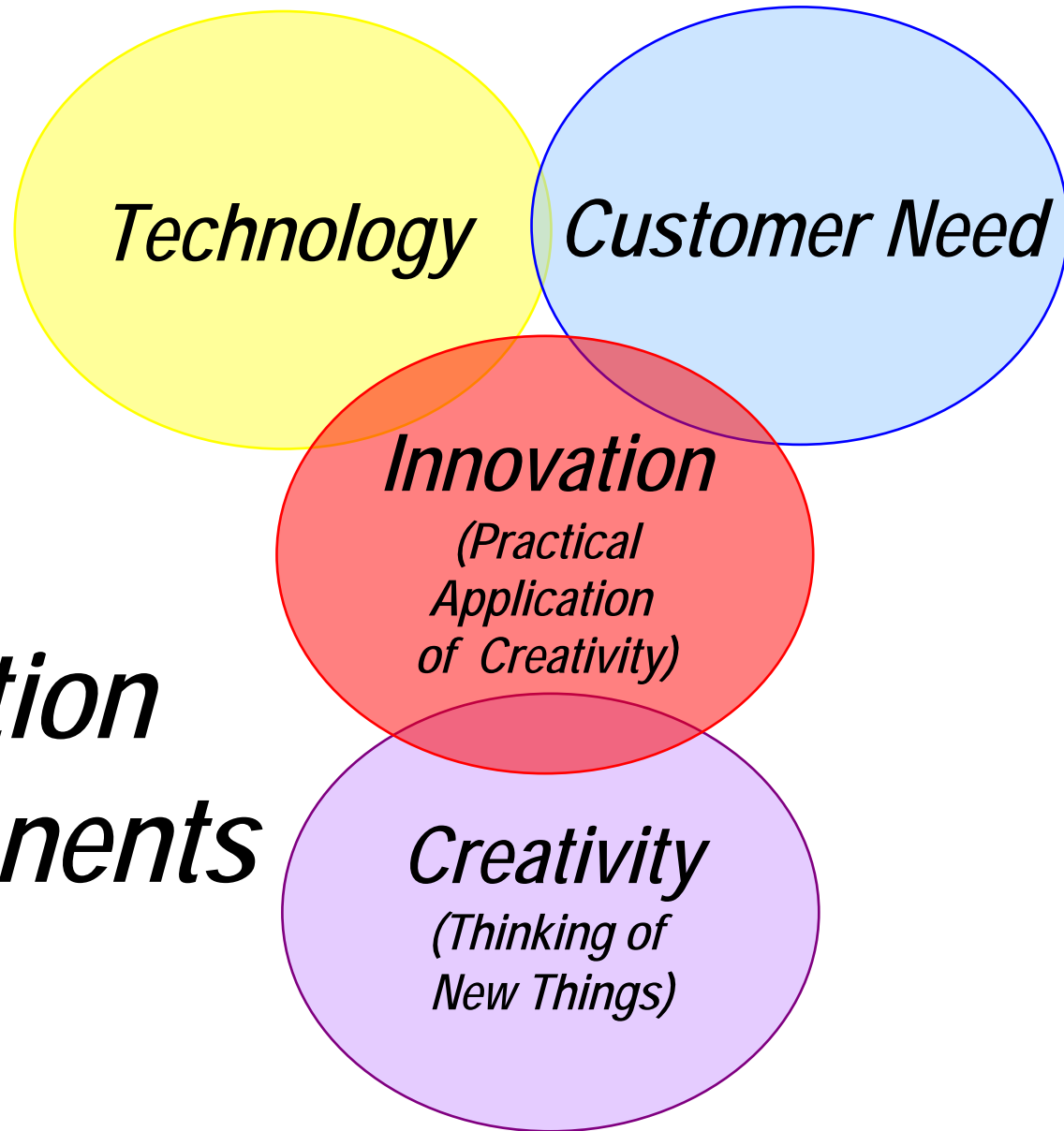
*Innovation
Components*

Innovation
*(Practical
Application
of Creativity)*





Innovation Components



Innovation = Practical Application and Use of Creativity and Discovery

- *Creativity*: The aptitude of the mind to construct or formulate ideas, concepts, or images in which the essential newness or freshness is embodied in new relationships, associations, or linkages.
- *Innovation*: The use or application of creativity to get a practical output which is new or novel (e.g., a new product or process).



Presentation Structure

- Introduction to 3M
- Imperatives of Innovation
- Barriers to Innovation
- Hiring Innovators



2008 Company Overview

Average of 6-7% of total sales for
R&D Spending per year

- 2008 Sales: \$25.3 B
- Operating income: \$5.2 B
- International sales 64% of company total (US\$16 B)
- R&D expenditure: \$1.4 B
- Companies in more than 60 countries
- Sales in nearly 200 countries
- Over 79,000 employees
- 55,000+ products *
- 561 U.S. patents issued
- 45,000 issued and pending patents worldwide *
- 45 established technology platforms

* Year 2007

Six Market Leading Businesses



Consumer
and Office



Display
and Graphics



Electro and
Communications



Safety, Security and
Protection Services



Health Care



Industrial and
Transportation



A Reputable Company

No. 22 in the World

No. 7 in the U.S.

Rank	Company	Global Pulse
1	Toyota Motor Corp. (Japan)	86.53
2	Google (US)	85.23
3	IKEA (Sweden)	84.14
4	Ferrero (Italy)	83.52
5	Johnson & Johnson (US)	83.48
6	Tata Group (India)	82.84
7	Kraft Foods Inc. (US)	82.79
8	Novo Nordisk (Denmark)	82.28
9	Grupo Bimbo, S.A. (Mexico)	81.75
10	Migros (Switzerland)	81.54
11	General Mills (US)	81.34
12	Walt Disney (US)	81.22
13	Haier Corporation (China)	81.19
14	Infosys Technologies Limited (India)	81.18
15	United Parcel Service (US)	81.05
16	Sharp Corp. (Japan)	80.44
17	Coop (Norway)	80.43
18	Jean Coutu Group (Canada)	80.11
19	El Corte Inglés (Spain)	80.00
20	Petrobras (Brazil)	79.97
21	Carlsberg (Denmark)	79.82
22	3M (US)	79.79
23	Barilla (Italy)	79.44
24	Grupo Gerdau (Brazil)	79.26
25	Robert Bosch GmbH (Germany)	79.22

COMPANY	2008 RANK
Google	1
Johnson & Johnson	2
Kraft Foods	3
General Mills	4
Walt Disney	5
United Parcel Service	6
3M	7
Xerox	8
Colgate-Palmolive	9
Texas Instruments	10
Eastman Kodak	11
General Electric	12
Sara Lee	13
FedEx	14
Deere & Co.	15
Goodyear	16
Apple	17
Hewlett-Packard	18
Intel	19
Publix Super Markets	20
Caterpillar	21
Whirlpool	22
Boeing	23
Costco Wholesale	24
Dell	25

Brands



3M



What 3M Stands For

Vision

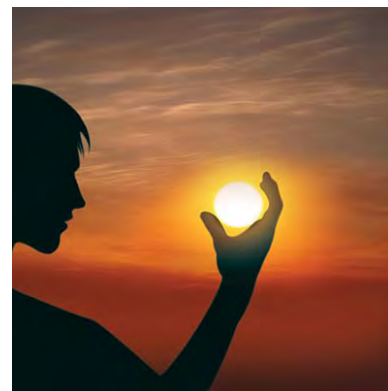
To be the most innovative enterprise and preferred supplier

Values

- Act with **uncompromising honesty and integrity** in everything we do.
- **Satisfy our customers** with innovative technology and superior quality, value and service.
- Provide our **investors** an attractive return through sustainable, global growth.
- Respect our **social and physical environment** around the world.
- Value and develop our **employees'** diverse talents, initiative and leadership.
- **Earn the admiration** of all those associated with 3M worldwide.

Brand Promise

Practical & ingenious solutions that help customers succeed



3M Singapore

- Established in 1966
- Yishun Office (2008)
- 3M Woodlands Plant (1998)
- 3M Innovation Centre (2000)
- 3M Tuas Plant (expected 2009)
- Employs more than 900 employees



45 Core Technology Platforms

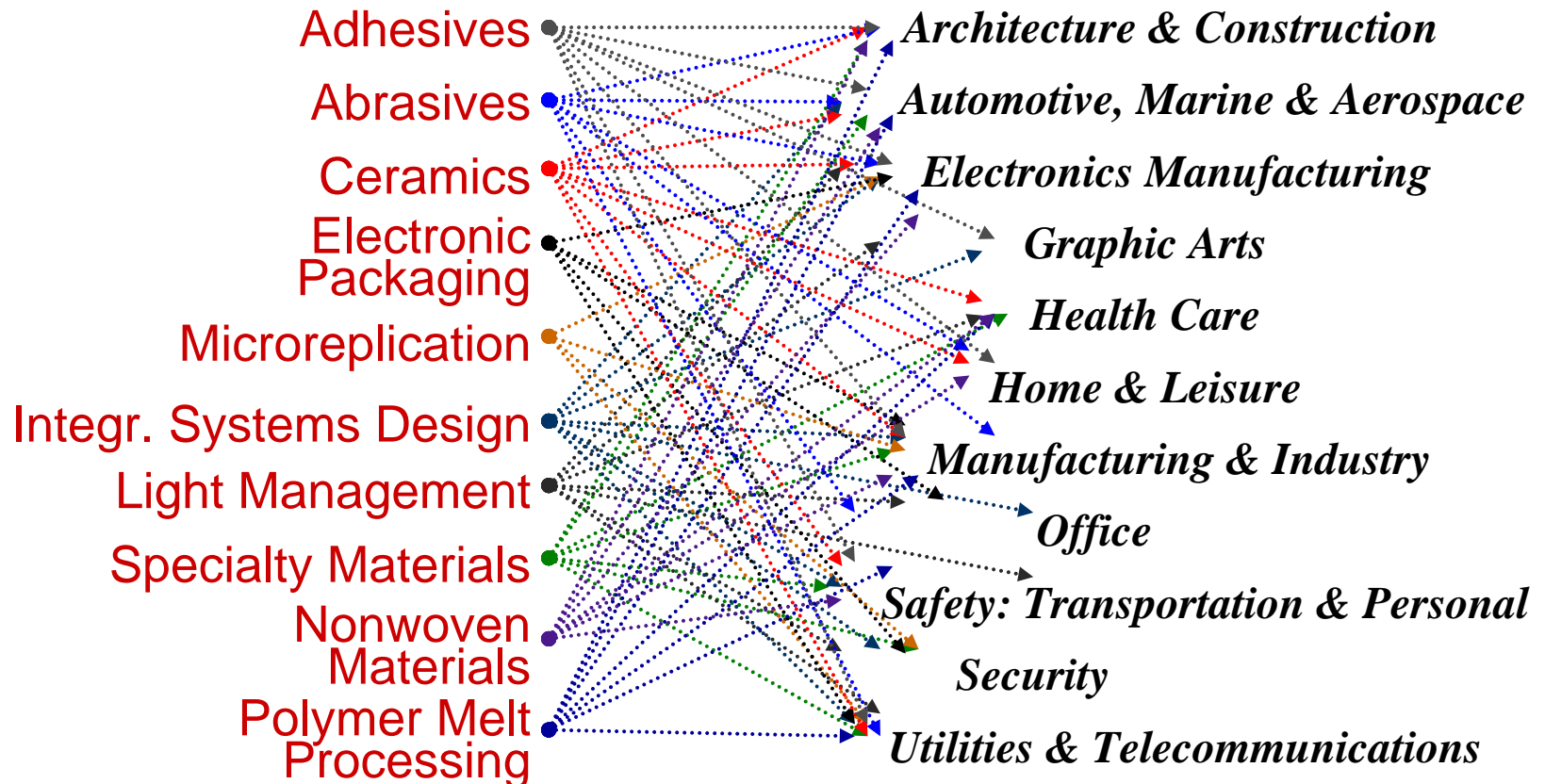
<u>Ab</u> Abrasives	<u>Bi</u> Biotech							<u>Pm</u> Polymer Melt Processing	<u>Sm</u> Specialty Materials
<u>Ac</u> Acoustics	<u>Ce</u> Ceramics	<u>Em</u> Electronic Materials					<u>Nt</u> Nano-technology	<u>Po</u> Porous Materials & Membranes	<u>Su</u> Surface Modification
<u>Ad</u> Adhesives	<u>Dd</u> Drug Delivery	<u>Fc</u> Flexible Converting & Packaging				<u>Mi</u> Microbial Detection & Control	<u>Nw</u> Nonwoven Materials	<u>Pp</u> Precision Processing	<u>Tt</u> Track and Trace
<u>Am</u> Advanced Materials	<u>Di</u> Display	<u>Fe</u> Flexible Electronics	<u>Fs</u> Filtration, Separation, Purification	<u>Is</u> Integrated Systems & Design	<u>Me</u> Metal Matrix Composites	<u>Mo</u> Molding	<u>Op</u> Opto-electronics	<u>Pr</u> Process Design & Control	<u>Vp</u> Vapor Processing
<u>An</u> Analytical	<u>Do</u> Dental & Orthodontic Materials	<u>Fi</u> Films	<u>Im</u> Imaging	<u>Lm</u> Light Mgmt	<u>Mf</u> Mechanical Fasteners	<u>Mr</u> Micro-replication	<u>Pd</u> Particle & Dispersion Processing	<u>Rp</u> Radiation Processing	<u>We</u> Accelerated Weathering
<u>As</u> Application Software	<u>Ec</u> Energy Components	<u>Fl</u> Fluoro-materials	<u>In</u> Inspection & Measurement	<u>Md</u> Medical Data Mgmt			<u>Pe</u> Predictive Engineering & Modeling	<u>Se</u> Sensors	<u>Wo</u> Wound Mgmt

Successful new product growth builds on uncommon connections

Technology Platforms...Multiple Markets

3M Core Technologies

Markets



Innovation is...

not an accident ...

It is the product of a complex set of principles and practices which support and encourage the coupling of technology and creativity to satisfy customer needs.

accomplished by people...

- *Leaders who give permission and encouragement*
- *Team members who work with determination and imagination*
- *Customers who provide input and feedback to the process*



Innovation

- How to Innovate
- Barriers to Innovation
- How to Spot Innovators



How to Innovate: Imperatives of Innovation

- Vision
- Foresight
- Going Beyond
- Empowerment
- Communication
- Rewards and Recognition



3M's First Customer Inspired Innovation...

Two-tone cars were in demand...

But a clean paint line was very hard to achieve...



Which 3Mer Dick Drew observed while visiting to sell sandpaper...

and he remembered some stuff he'd seen in the laboratory...



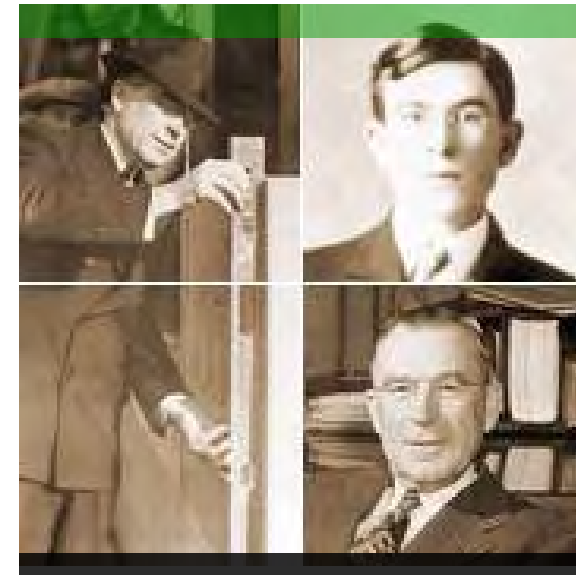
McKnight Principles

"As our business grows, it becomes increasingly necessary to **delegate responsibility** and to encourage men and women to exercise their initiative. This requires considerable tolerance. Those men and women ... are going to want to do their jobs in their own way.

Mistakes will be made. But if a person is essentially right, the mistakes he or she makes are not as serious in the long run as the mistakes management will make if it undertakes to tell those in authority exactly how they must do their jobs.

Management that is destructively critical when mistakes are made kills initiative. **And it is essential that we have many people with initiative if we are to continue to grow."**

- William McKnight, 1948



Barriers to Innovation

- "It'll never work."
- "We tried that before years ago."
- "OK, if we can get somebody else to pay for it."
- "It's not in the plan."
- "It's not your job to think."
- "Just take care of your own work."



Hiring Innovators

Traits & Characteristics

- **Creative** - inquisitive, look for solutions, visionary
- **Broad Interests** - multi-disciplinary, eager to learn and explore ideas with others
- **Problem Solvers** - experimental type, do first and explain later, not afraid to make mistake, willing to do the non-obvious
- **Self-Motivated/Energized** - self-starter, passionate, results-oriented, responsible
- **Strong Work Ethic** - committed, hard-working, have unstructured, flexible work habits
- **Resourceful** - networks & gets things done through others.



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Products & Services **Brands** **Our Company** **Partners & Suppliers**

3M in Singapore

Our unstoppable commitment to innovation, creating new technologies and products, places us exactly where our customers need us.

 **Diversity of Products**
For more than 100 years, people the world over have looked to 3M for thousands of products and ideas that solve problems and make their lives easier and better.

 **Powerful Leading Brands**
Ingenuity and quality are found in the 3M brands -- Scotch®, Post-it®, Scotchgard™, Thinsulate™, Scotch-Brite®, Filtrete™, Command™, Nexcare™ and Vikuiti™ -- that you've come to know and trust.

Our Company
3M is a diversified technology company serving customers in more than 200 countries in the following markets: consumer and office; display and graphics; electro and communications; health care; industrial and transportation; and safety, security and protection services.

Partners & Suppliers
3M depends on a diverse network of quality business partners and suppliers to serve our customers and ensure their success every day.

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FORTH
AND INNOVATE!

