

ANTIMICROBIAL COATINGS

BY TYPE (Silver, Copper & Others)

BY APPLICATION (Indoor air/HVAC, Medical, Mold remediation, Building & Construction, Food & Beverages, Textiles, & Others)

– Global Trends & Forecast to 2018



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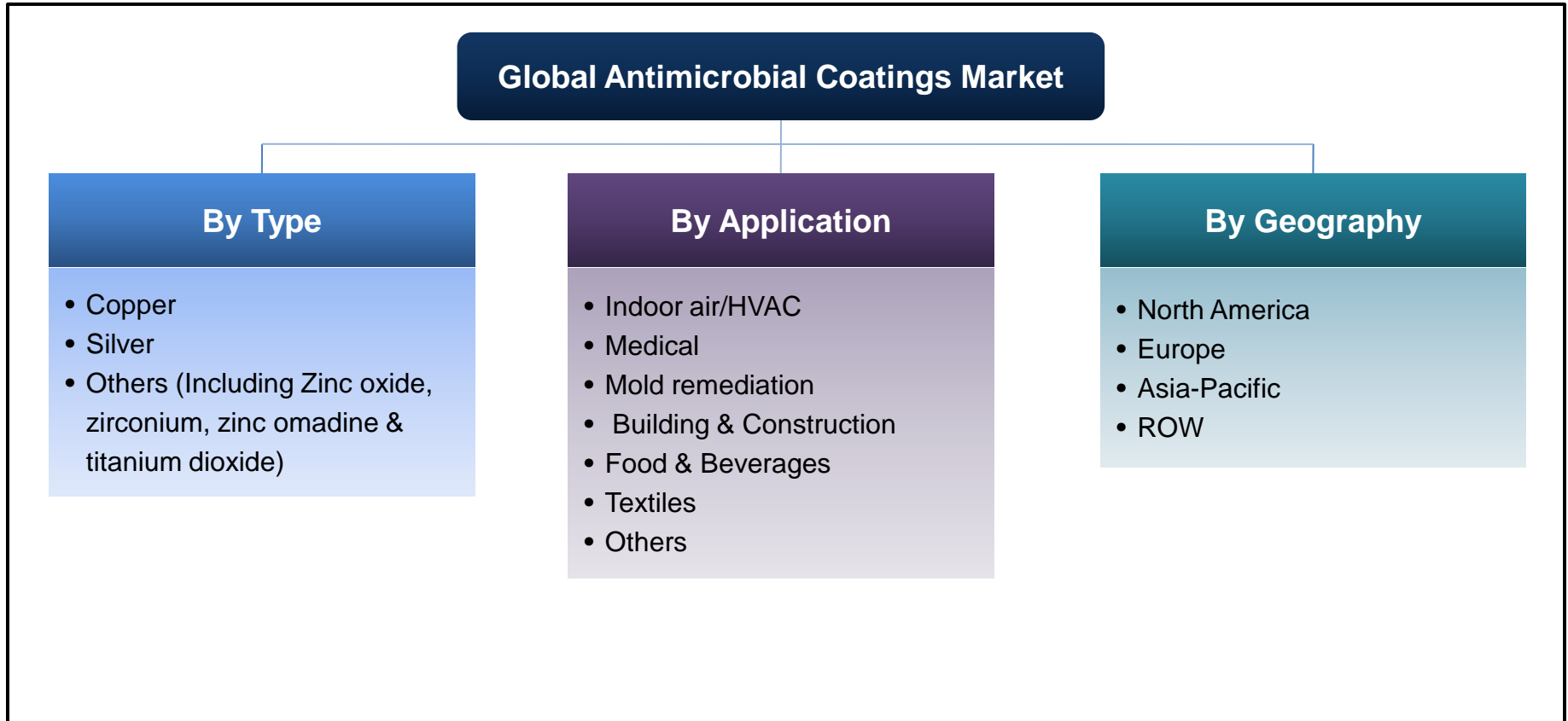
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1.3 Markets Covered

Figure 1 Antimicrobial Coatings Market Segmentation



2.2 Industry Snapshot

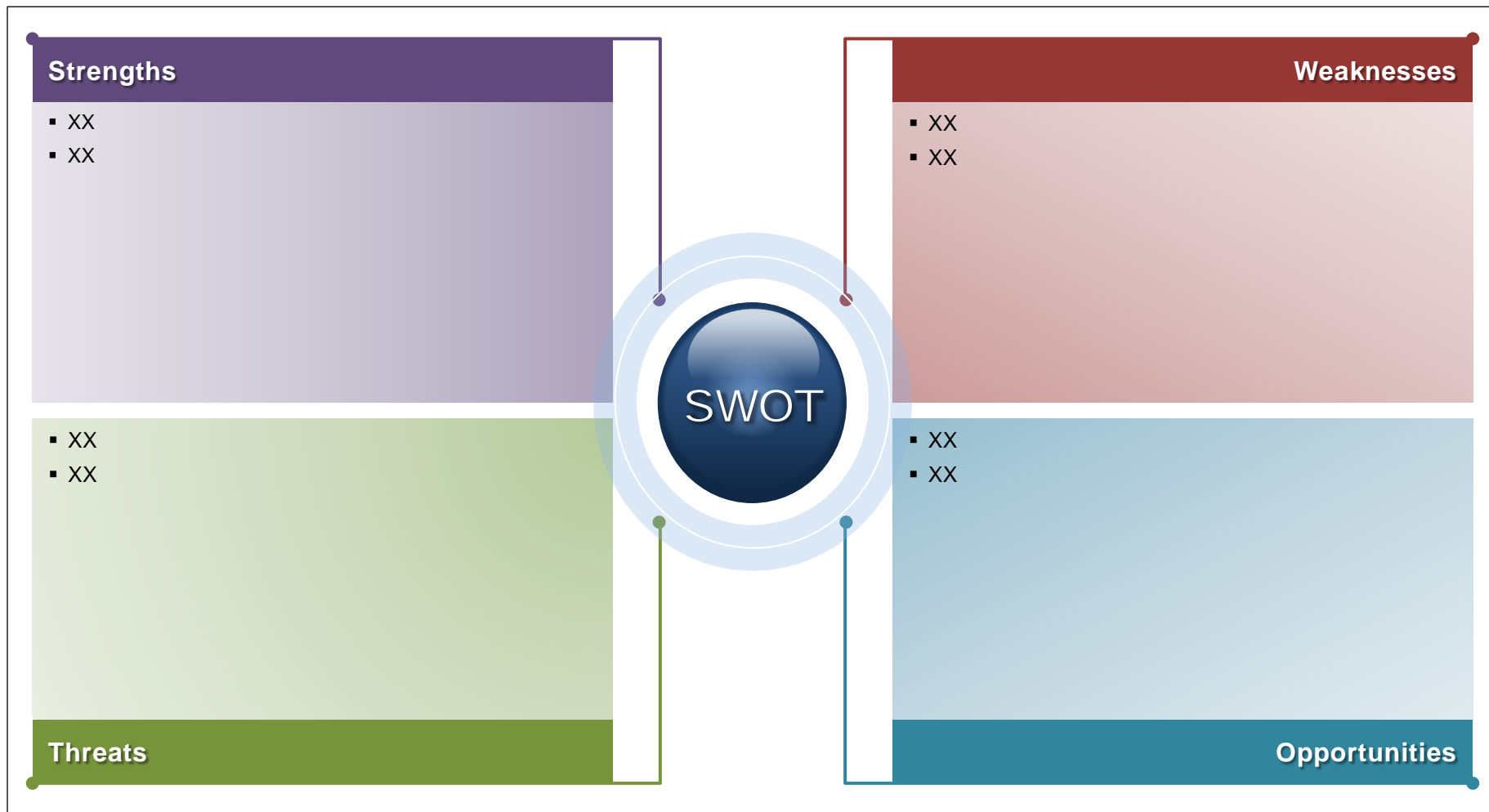
Table 4

Antimicrobial Silver Coatings: Industry Snapshot

Particular	2012	2018
Global Value (\$Million)	XX	XXq
Global Volume (Kilotons)	XX	XX
Geographic Share (% Volume)	North America: XX Europe: XX Asia-Pacific: XX ROW: XX	North America: XX Europe: XX Asia-Pacific: XX ROW: XX
Application Share (% Volume)	Indoor Air/HVAC: XX Medical: XX Mold Remediation: XX Building & Construction: XX Food & Beverages: XX Textiles: XX Others: XX	Indoor Air/HVAC: XX Medical: XX Mold Remediation: XX Building & Construction: XX Food & Beverages: XX Textiles: XX Others: XX
Industry Status in 2012	Fragmented Market -Top five players secured less than XX% of global market	
CAGR (2013-2018)	Value: XX%; Volume: XX%	



3.8 Antimicrobial Coatings: SWOT Analysis



3.9 Market Dynamics

3.9.1 Drivers

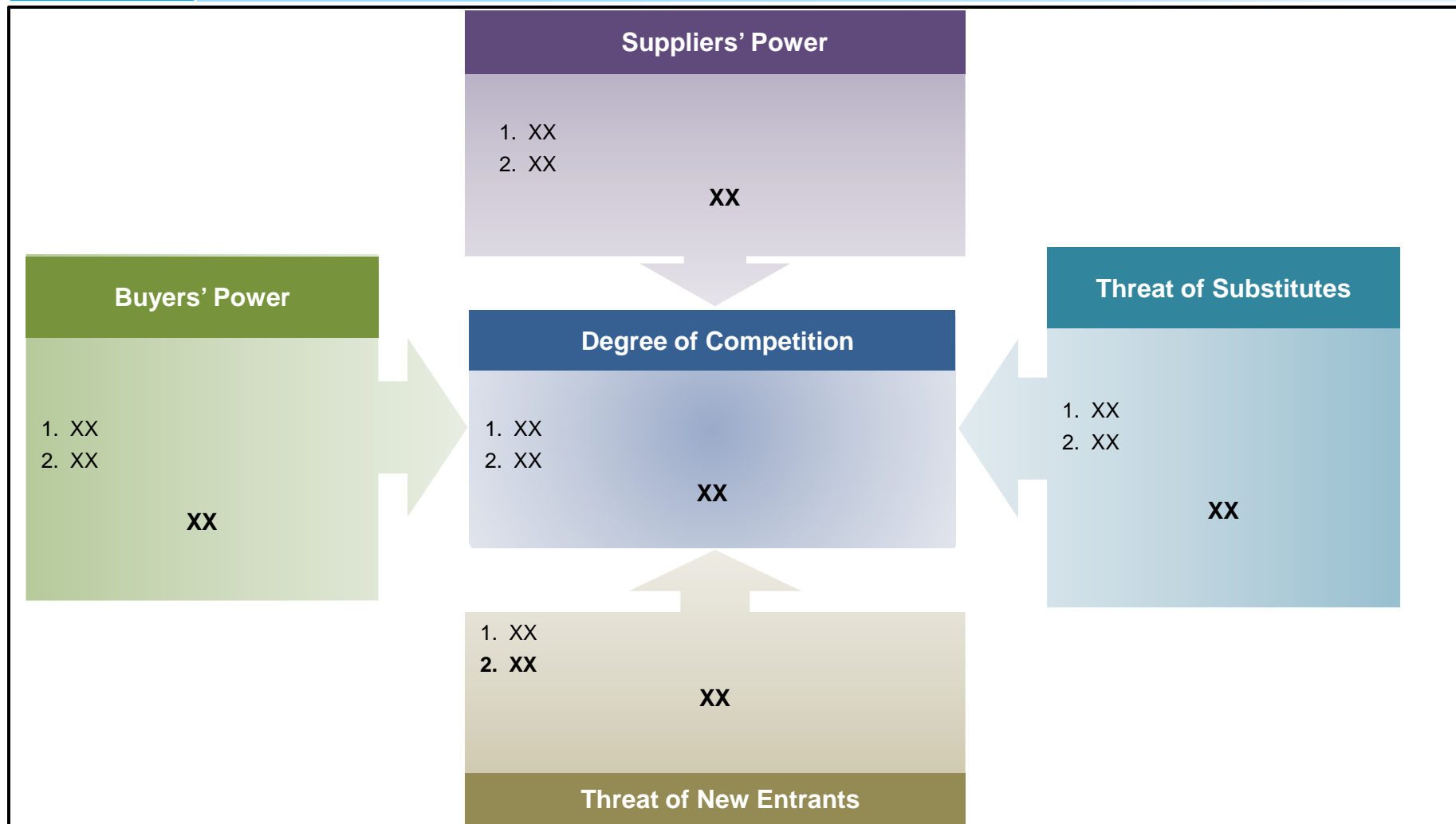
DRIVERS

- **Concerned about antibiotic products**
 - Growing awareness about health-related infections and interest in products such as coatings with antimicrobial properties
- **Aging population in the developed countries**
 - The ratio of adults aged XX years and over, compared with people aged XX years to XX years will increase by XX% in the coming decades and thus, investment public-health is likely to increase in the coming years
- **Reducing contact with pathogenic organisms**
 - Products and devices with antimicrobial coatings minimize contact with pathogens and spreading of their infections
- **Regulatory pressures on hospitals, schools, and other buildings**
 - Stringent environmental regulations by governments on the coatings industry have caused coating suppliers to search for antimicrobial additives that meet international regulatory guidelines



3.10 Antimicrobial Coatings: Porter's Five Forces Analysis

Figure 12 Porter's Five Forces Analysis: Summary

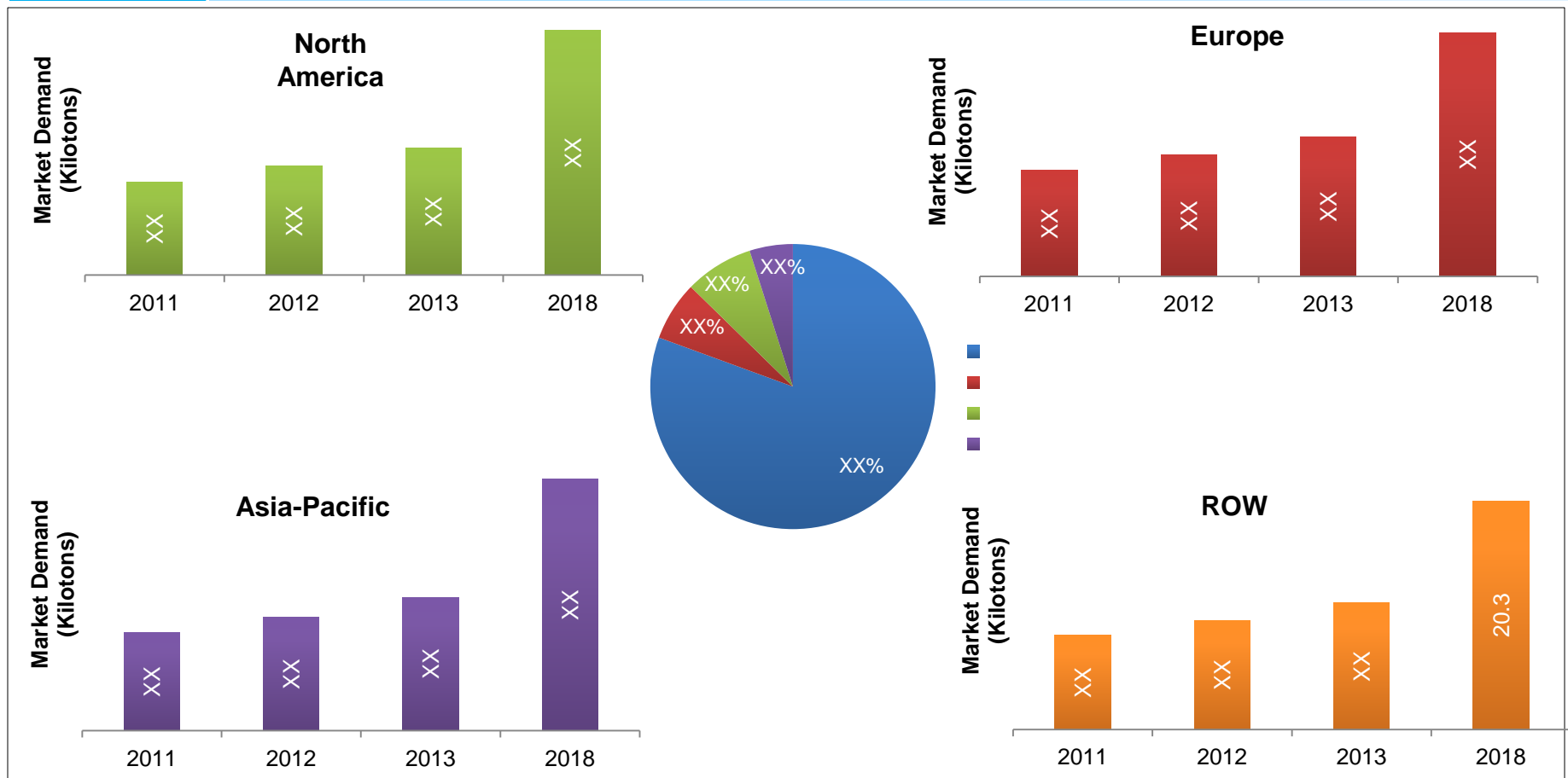


4.2 Antimicrobial Coatings: Market Trend & Forecast, by Geography

Antimicrobial Coatings market is forecast to grow at XX% in the next five years in terms of volume

Figure 14

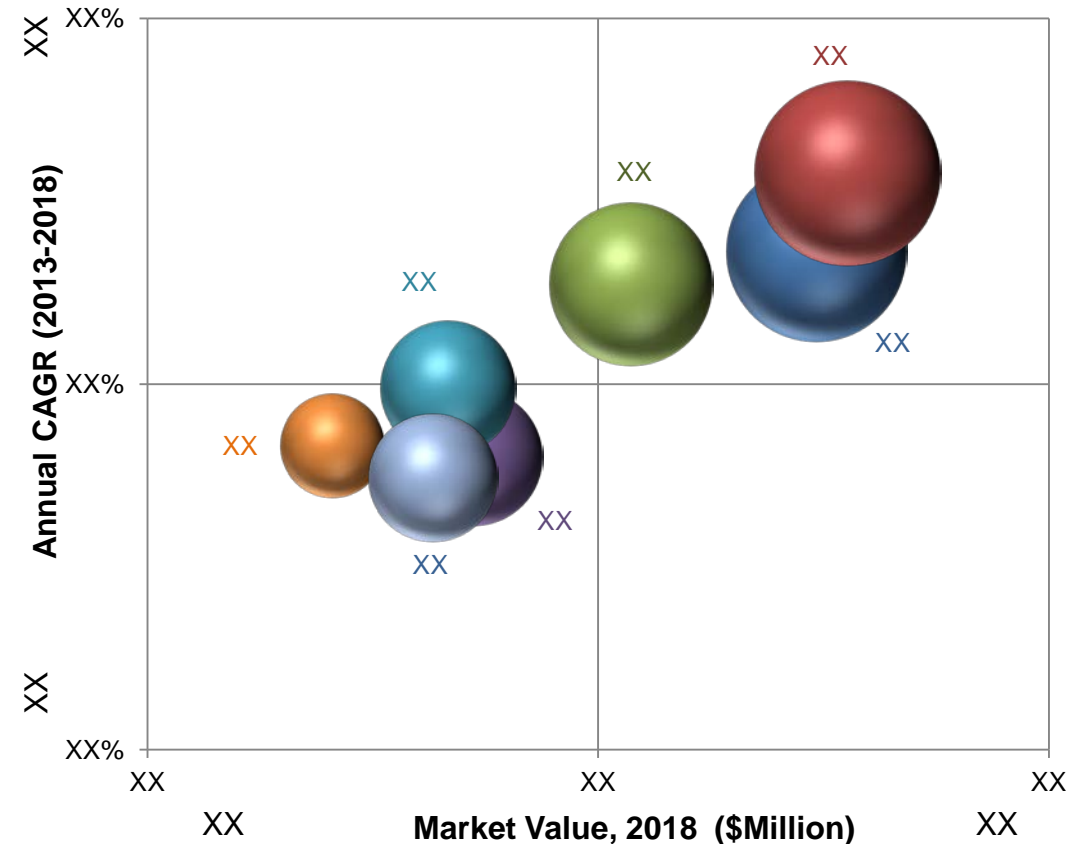
Antimicrobial Coatings Market Volume, by Geography, 2011-2018 & Market Volume Share, by Geography, 2012



4.4 Market Attractiveness: Antimicrobial Coatings, by Application

Figure 16

Antimicrobial Coatings Market Attractiveness, by Application, 2013-2018



Note: Bubble size represents **Market Volume, 2018 (Kilotons)**

INSIGHTS

- Huge potential for silver, copper, and other antimicrobial coatings in the medical, indoor air, and mold remediation applications
- Strict guidelines by the government agencies such as EPA, USDA, FDA, EFSA, and others for environment, medical, food & beverage and other industries
- Demanding applications, such as duct board used in HVAC systems, an antimicrobial treatment (silver or copper coated) protects against the growth of fungus and bacteria to provide a superior indoor environment for everyone involved
- The antimicrobial activity of silver, copper, and layered Ag-Cu surface films, sputter-coated onto several types of catheter material, making it infection-free for up to twelve weeks and improve the lives of long-term catheter users



6.2 Antimicrobial Silver Coatings: Global Market Trend

Table 8 Antimicrobial Silver Coatings Market Volume & Value, 2011-2018 (\$Million)

Particular	2011	2012	2013	2018	CAGR% (2013–2018)
Volume (Kilotons)	XX	XX	XX	XX	XX
Value (\$Million)	XX	XX	XX	XX	XX

INSIGHTS

- For a long time, silver has been known to be a potent antibacterial agent and toxic to germs, fungi and algae; and in the past few years, the use of silver in coatings has experienced a dramatic revival
- Silver and nanosilver fall under REACH (EU 1097/2006), unless another specific use is covered by another specific regulation
- Inorganic silver antimicrobial additive systems such as colloidal silver, silver salts, silver zeolite/ion exchange resins, complex glasses containing metal ions and nanosilver have been in high demand in the health care arena
- According to the U.S. Centers for Disease Control and Prevention, more than XX million people per year contract bacterial infections in hospitals. The antimicrobial property of silver has not shown any adverse effects in humans unless excessive silver is consumed
- Silver coatings are increasingly used in range of products such as, fibers, washing machines, dyes/paints and varnishes, polymers, medical applications, sinks and sanitary ceramics, and various consumer applications such as disinfectants, cosmetics, cleaning agents, baby bottles, and others



6.4 Antimicrobial Copper Coatings: Global Market Trend

Table 10 Other Antimicrobial Coatings Market Volume & Value, 2011-2018 (\$Million)

Particular	2011	2012	2013	2018	CAGR% (2013–2018)
Volume (Kilotons)	XX	XX	XX	XX	XX
Value (\$Million)	XX	XX	XX	XX	XX

INSIGHTS

- The demand for zinc and titanium dioxide have been same due to their antimicrobial properties at low cost
- Several research and approaches to prevent bacterial colonization on surfaces, demanded the development of advanced zinc oxide nano-particles antibacterial surface coatings
- These other antimicrobial coatings are estimated to grow at a moderate rate of about XX% by value reaching \$XX million by 2018



7.1.1 Antimicrobial Coatings: Global Market Trend, by Application

Table 11

Antimicrobial Coatings Market Value, by Application, 2011-2018 (\$Million)

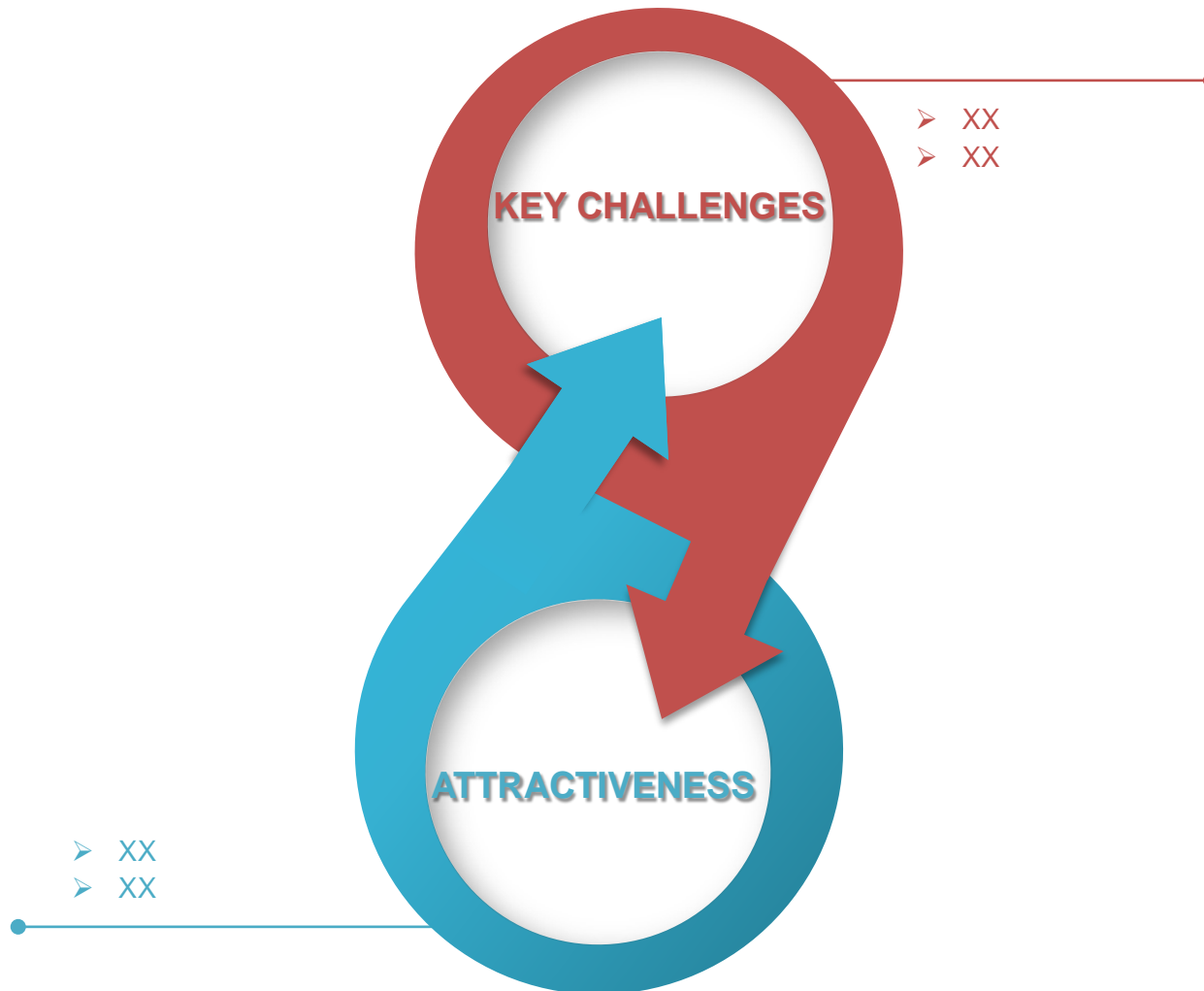
Application	2011	2012	2013	2018	CAGR% (2013–2018)
Indoor air/HVAC	XX	XX	XX	XX	XX
Medical	XX	XX	XX	XX	XX
Mold remediation	XX	XX	XX	XX	XX
Building & Construction	XX	XX	XX	XX	XX
Food & Beverages	XX	XX	XX	XX	XX
Textiles	XX	XX	XX	XX	XX
Others	XX	XX	XX	XX	XX
Total	XX	XX	XX	XX	XX

- The demand of antimicrobial coatings in Indoor air/HVAC segment is the largest and is expected to grow at a CAGR of 13.6% due to the rise of building & construction industry worldwide



Figure 26

Key Challenges vs. Attractiveness of Medical Market



8.2.1 U.S.: Antimicrobial Coatings Market Trend, 2011-2018

Table 30

U.S.: Antimicrobial Coatings Market Volume & Value, 2011-2018

Type	2011	2012	2013	2018	CAGR% (2013–2018)
Volume (Kilotons)	XX	XX	XX	XX	XX
Value (\$Million)	XX	XX	XX	XX	XX







































INSIGHTS

- U.S. was the leading country in North America, with a share of XX%, in terms of market value, in 2012
- The antimicrobial coatings market did not suffer like the other markets due to the negative indicators in the U.S. economy, which has been very turbulent since 2009, and it is expected that the demand for antimicrobials in medical, food, HVAC systems, and textile industries will increase by XX% by volume
- Visible improvement of the construction sector in the U.S. will also account for antimicrobial coatings growth in the region by 2018



9.3 Competitor Application Mapping

Figure 27 Antimicrobial Coatings: Competitor Application Mapping

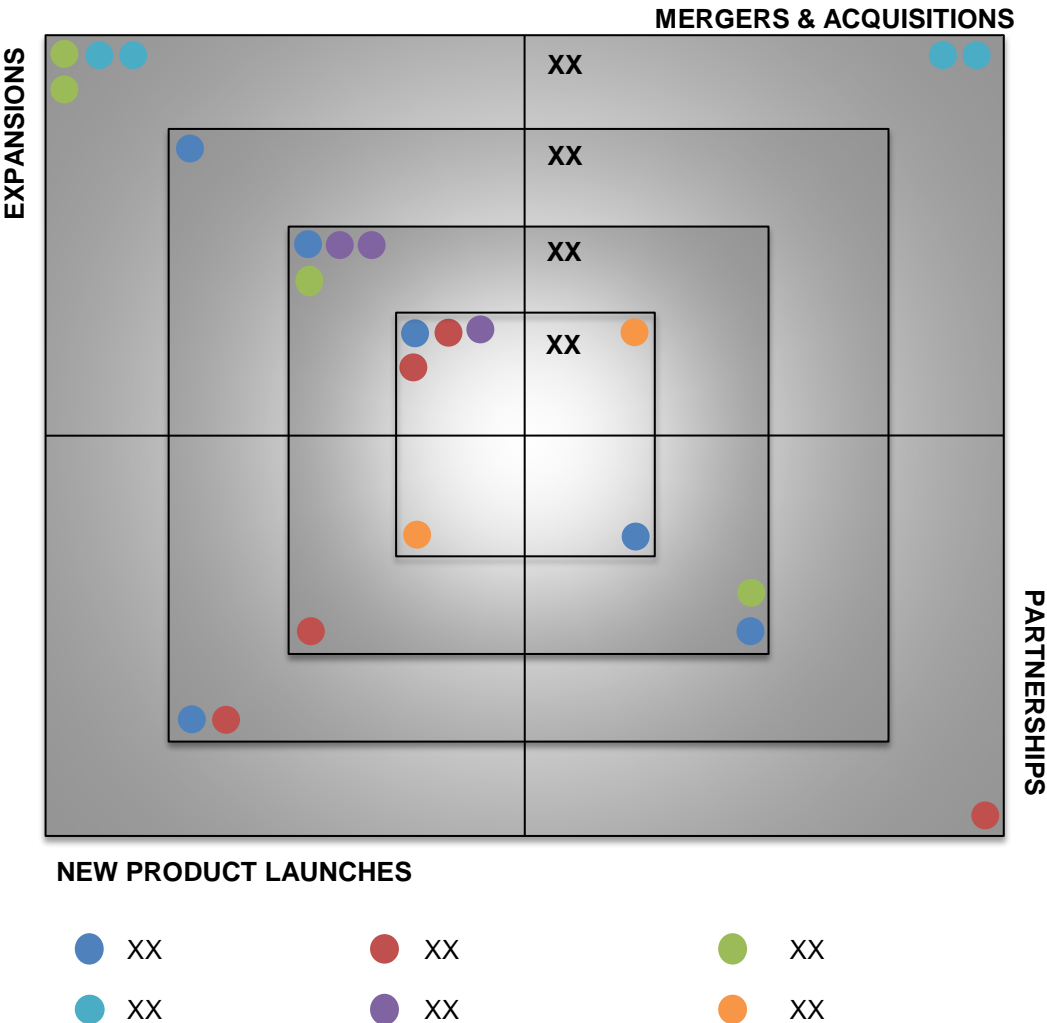
Company	1	2	3	4	5	6	7
AkzoNobel N.V.							
BASF SE							
PPG Industries Inc.							
The Dow Chemical Company							
The Sherwin-Williams Company							
	 XX	 XX	 XX				

- | | | |
|-------|-------|-------|
| 1. XX | 2. XX | 3. XX |
| 4. XX | 5. XX | 6. XX |
| 7. XX | | |



Figure 32

Growth Strategies of Major Companies, 2010–2013*



* October 2013



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