

SAFER MADE: INVESTING IN SAFER CHEMISTRY AND CONSUMER PRODUCTS





People's concern
about their families'
chemical exposure
translates into multi-
billion dollar demand
for safer products.



Safer product solutions already exist and need attention and capital to get to market.



We invest in companies that remove or reduce the use of harmful chemicals in products and manufacturing processes. The results are healthier people, cleaner waters, and more nourishing soils.



The rapid growth in revenue and valuations of brands that focus on safety:

- Confirms that safety drives competitive advantage
- Puts pressure on existing brands to adopt safer chemistry

BRANDS BUILT ON SAFETY AND SUSTAINABILITY ATTRIBUTES



Revenue \$600 million (2013)



Acquired by SC Johnson (2017)



Acquired by Unilever for \$700 million (2016)



Schmidt's Acquired by Unilever (2018)



Revenue \$170 million, valued at \$1.7 billion (2014)



Acquired by Clorox for \$925 million (2007)



Acquired by P&G for \$100 million (2017)

WORKING TOGETHER TO IMPROVE CONSUMER PRODUCTS



HARMFUL CHEMICALS PROVIDE FUNCTION AND PERFORMANCE



Beauty and Cosmetics



Cleaning



Apparel



Building Materials

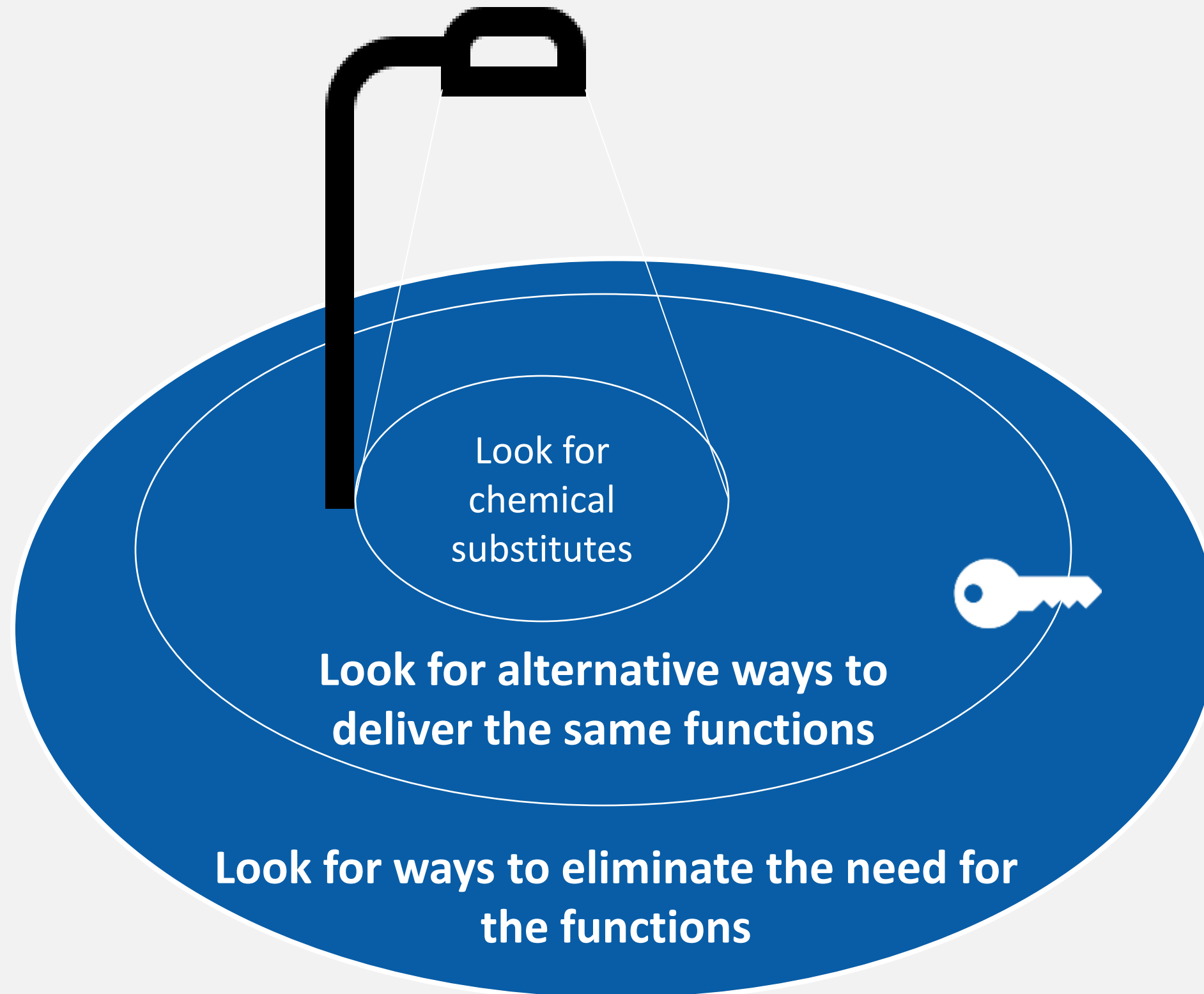


Food Contact Packaging

INNOVATION OPPORTUNITIES

Safer Chemistry Need Addressed	Relevant Market	Market Size (\$ Million)
<ul style="list-style-type: none">Formaldehyde-free, non-iron textilesNon-fluorinated water and oil-resistant compounds for textiles	Textile Finishing	19,600**
<ul style="list-style-type: none">Safe and effective preservatives	Preservatives	3,300*
<ul style="list-style-type: none">Safe and selective herbicides, insecticides, and fungicides	Pesticides	47,400*
<ul style="list-style-type: none">Safe food contact packaging	Styrene	6,300
<ul style="list-style-type: none">Testing / formulation / design hardware and software tools	Testing, Information Tools	NA.
<ul style="list-style-type: none">Safe dyes and colorants	Dyes	10,600*
<ul style="list-style-type: none">Safe adhesives and epoxy composites	Adhesives	12,200*
<ul style="list-style-type: none">Dry cleaning without harmful chemicals	Dry Cleaning	9,300*
<ul style="list-style-type: none">Lubricants without VOCs, PFCs, or aromatic hydrocarbons	Lubricants	24,000*
<ul style="list-style-type: none">Isocyanate-free foamsFlame- and heat-resistant plastics without flame retardants, antimony, or phthalates	Urethane Foams	10,800*

FUNCTIONAL PERSPECTIVE



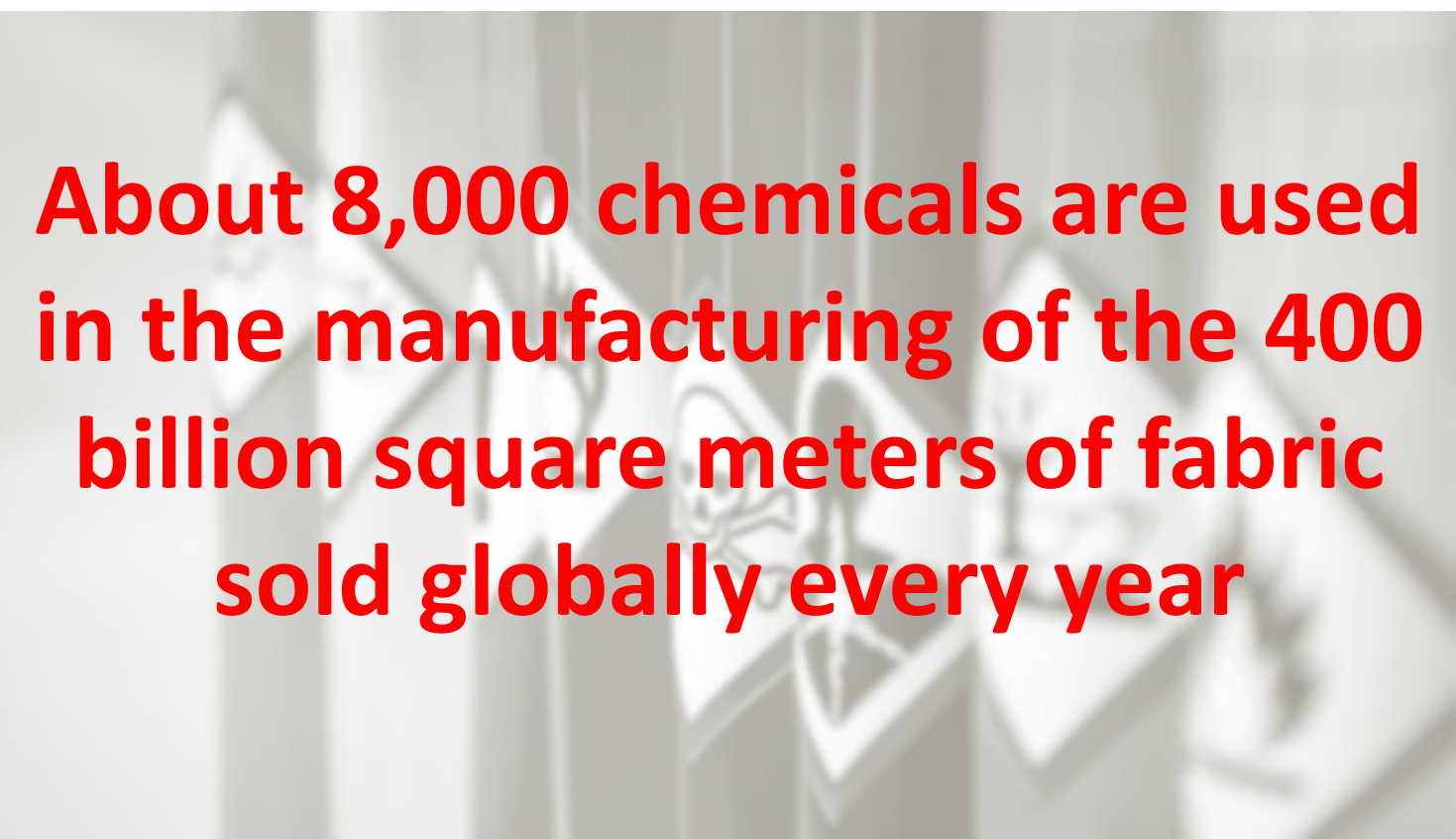
CREATE A RESEARCH AND INNOVATION AGENDA



Textile and Apparel
Innovation Agenda



In 2016 global textile production exceeded 62 million tons, the equivalent of roughly 300 billion tee-shirts



About 8,000 chemicals are used in the manufacturing of the 400 billion square meters of fabric sold globally every year



It takes 700 gallons of water to produce every tee-shirt

CAREFUL WHAT YOU LEAVE BEHIND

Tell outdoor brands to stop using
hazardous chemicals and detox now ▶

DETOX
OUTDOOR

Awareness and
Transparency

Restricted substance
lists

Preferred
substances and
chemical screening

Product and brand
redesign



STEP 1 **YARN**

Oils to reduce friction



STEP 2 **FABRIC PRODUCTION**

Sizing chemicals, lubricants, solvents such as benzene adhesives, and binders



STEP 3 **PRE-TREATMENT**

Surfactants such as alkylphenol ethoxylates, solvents, bases for cleaning fabric, bleaches to prepare for dyeing



STEP 4 **DYEING & PRINTING**

Heavy metal fixes agents and dyestuffs, polymers and plasticizers for printing, detergents



STEP 5 **FINISHING**

Softening using ammonium compounds, silicones, polyurethanes; crease resistance using a formaldehyde-based resin; water and stain resistance using fluorocarbons



CHEMICAL CLASSES OF CONCERN FOUND IN THE TEXTILE INDUSTRY

Amines are as building blocks for dyes, polymers and surfactants (quaternary ammonia compounds). Amines are often contaminants or released during the breakdown of materials.

Dyes and residuals include some dyes that are harmful and should be avoided. Among the more harmful are aryl amine releasers (azo and benzidine dyes) and sensitizing disperse dyes.

Halogenated chemicals are used as preservatives, solvents, flame retardants, and durable water repellent finishes and membranes.

Heavy metals are used in dyes and as catalysts or formulation aids in resins and synthetic fibers. Many of the most dangerous heavy metals like lead and cadmium are regulated, while others like organotin compounds can be found in a wide variety of formulations.

Monomers are the building blocks of synthetic fibers and resins. They must be reactive to perform their function.

Solvents are widely used to transfer chemistry onto fabric and/or remove residuals. Solvents and process aids are used in large quantities and often affect workers. Some solvents fulfill specific functions, such as DMF used in foaming polyurethane, while others are used for many applications, such as the aromatic solvents used for cleaning or dispersion of dyes.



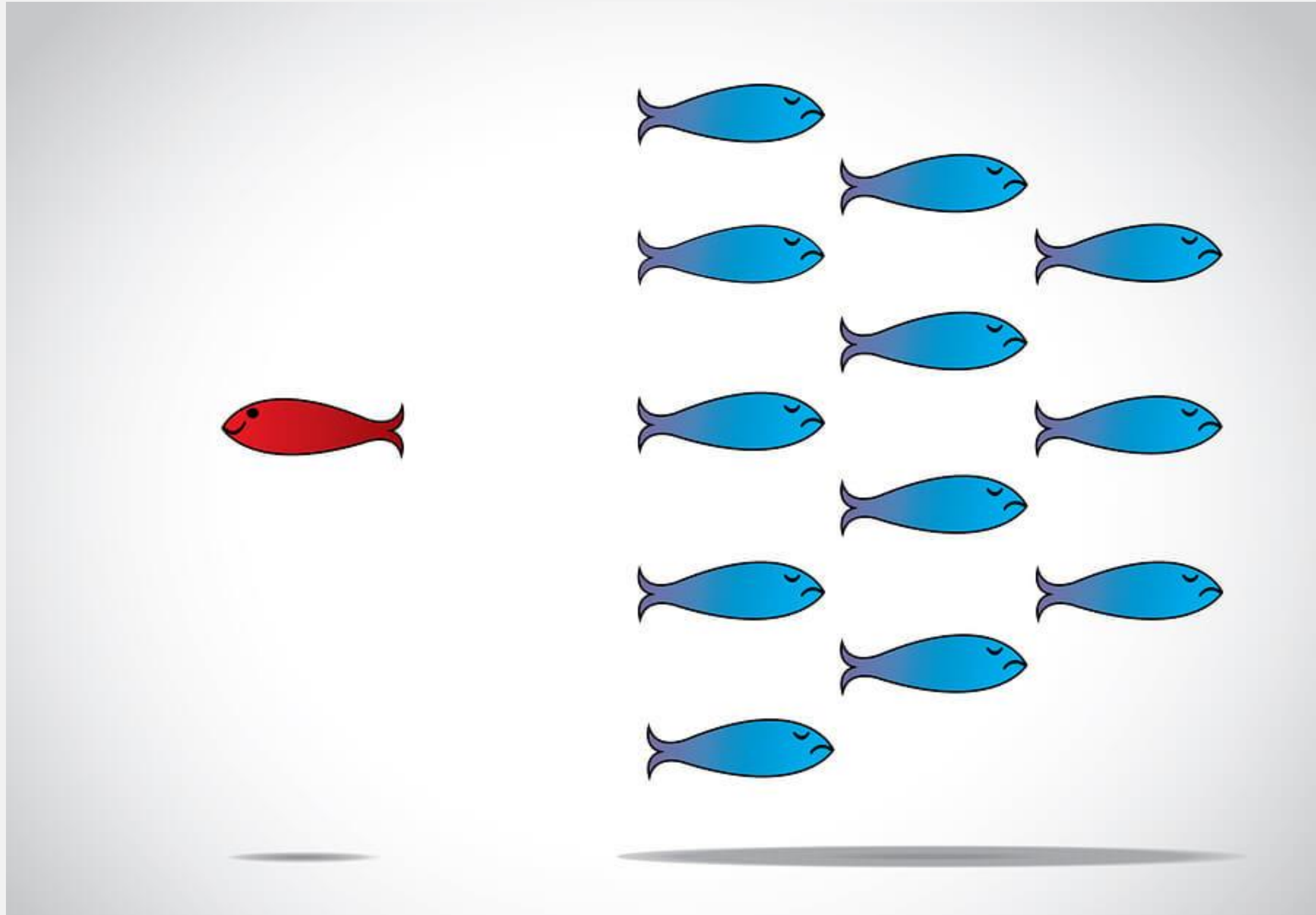
Safer Chemistry Innovation in the Textile and Apparel Industry

JUNE 2018

TEXTILE SECTOR INNOVATION CHALLENGES

NEW MATERIALS	NEW SAFER CHEMISTRIES	WATERLESS PROCESSING	FIBER RECYCLING	SUPPLY CHAIN INFORMATION MANAGEMENT SYSTEMS
Synthetic Fibers	Safer Finishing Chemistries	Waterless Dyeing Processes	Cotton	Chemicals Management Information Systems
Cellulosic Fibers	Bio Based Dyes	Waterless Finishing Processes	Polyester	Traceability Systems
Leather Alternatives			Blends	
			Nylon	

STARTUPS ARE WILLING TO GO WHERE INCUMBENTS AREN'T



NEW MATERIALS CAN MEAN SAFER CHEMISTRY: LEATHER

Chemicals	Functions
Chlorinated aromatics	Solvent
Pentachlorophenol	Perservative
Chromium	Tanning agent
Chlorinated Paraffin	Softener
Naphthalene	Contaminant in Tanning and Dyeing
Sodium Sulfide	Tanning agent
Acrylic and Isocyanate monomers	Cross-linkers and finishing agents

NEW MATERIALS CAN MEAN SAFER CHEMISTRY: LEATHER

COMPANY	TECHNOLOGY/SOURCE MATERIAL	WEBSITE
Amadou	Mushroom	amadouleather.com
Atlantic Leather	Fish	atlanticleather.is
bleed clothing GmbH	Cork	bleed-clothing.com/english
E-Leather	Recycled leather fibers with synthetic fiber support	eleathergroup.com
Ecovative / Bolt Threads	Mushroom	ecovatedesign.com
Fruitleather	Fruit waste	fruiteather.nl
Geltor	Bio-fabricated leather made from fermentation produced collagen	geltor.com
Modern Meadow	Bio-fabricated leather made from fermentation produced collagen	modernmeadow.com
Mycoworks	Fungal mycelium	mycoworks.com
Noani	Eucalyptus fiber	noanifashion.de/en
Okinawa	Plant and wood	okinawa.it
Pinatex	Pineapple leaf	ananas-anam.com
Provenance	Bio-fabricated leather made from fermentation-produced collagen	provenance.bio/technology
Thamon	Sal leaf	thamon.co.uk
Vegea	Grape waste	vegeacompany.com/en

FABRIC DYEING AND FINISHING WITHOUT WATER

Fabric
Production

Dyeing

Fabric
finishing

Boilers for
steam

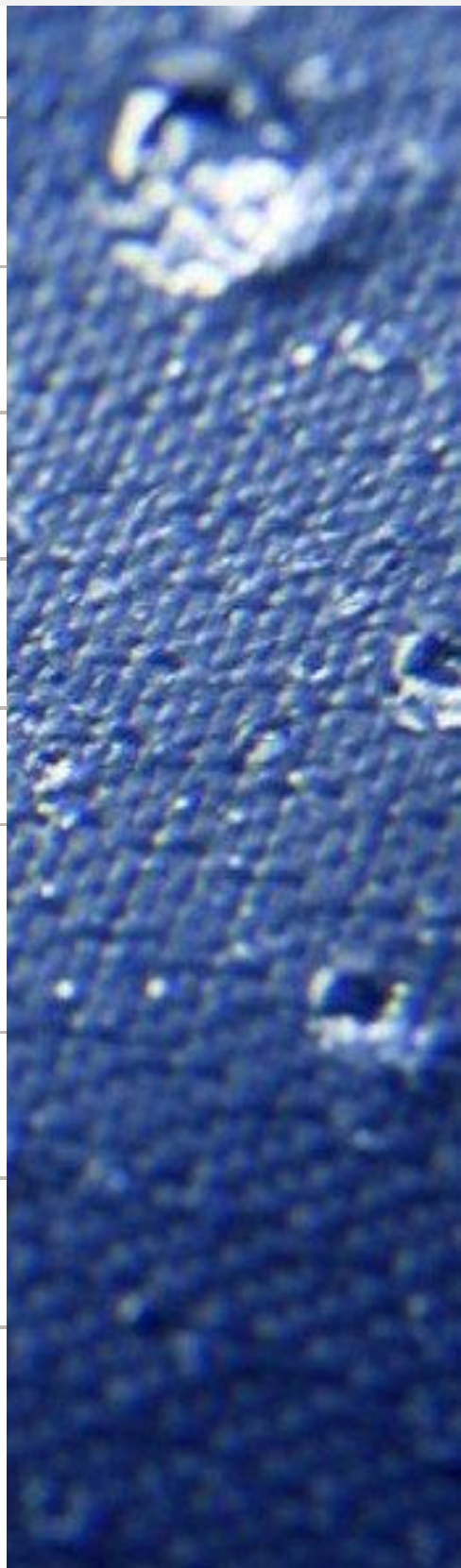
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10%


FABRIC DYEING AND FINISHING WITHOUT WATER

	COMPANY NAME	PRODUCT/TECHNOLOGY	TEXTILE PROCESS	
	APJet	Atmospherically stable plasma for chemical deposition	Fabric finishing	
	Applied Separations	Super critical CO2 technology	Dyeing	
	ColorZen	Efficient and safe cationization of cotton	Dyeing	
	DyeCoo	Super critical CO2 for dyeing synthetics	Dyeing	
	eDye	Dope dyeing of polyester	Dyeing	
	Green Theme International	Waterless chemistry platform providing high performance durable water repellency	Finishing/dyeing	
	MTI-X	Plasma processing for textile dyeing and finishing	Finishing/dyeing	
	SpinDye	Dope dyeing processes using recycled polyester	Dyeing	
	Xeros	Polymer bead-based cleaning system that eliminates water use and microfiber pollution in commercial laundry	Finishing/dyeing	

TEXTILE RECYCLING

TEXTILE RECYCLING TYPES

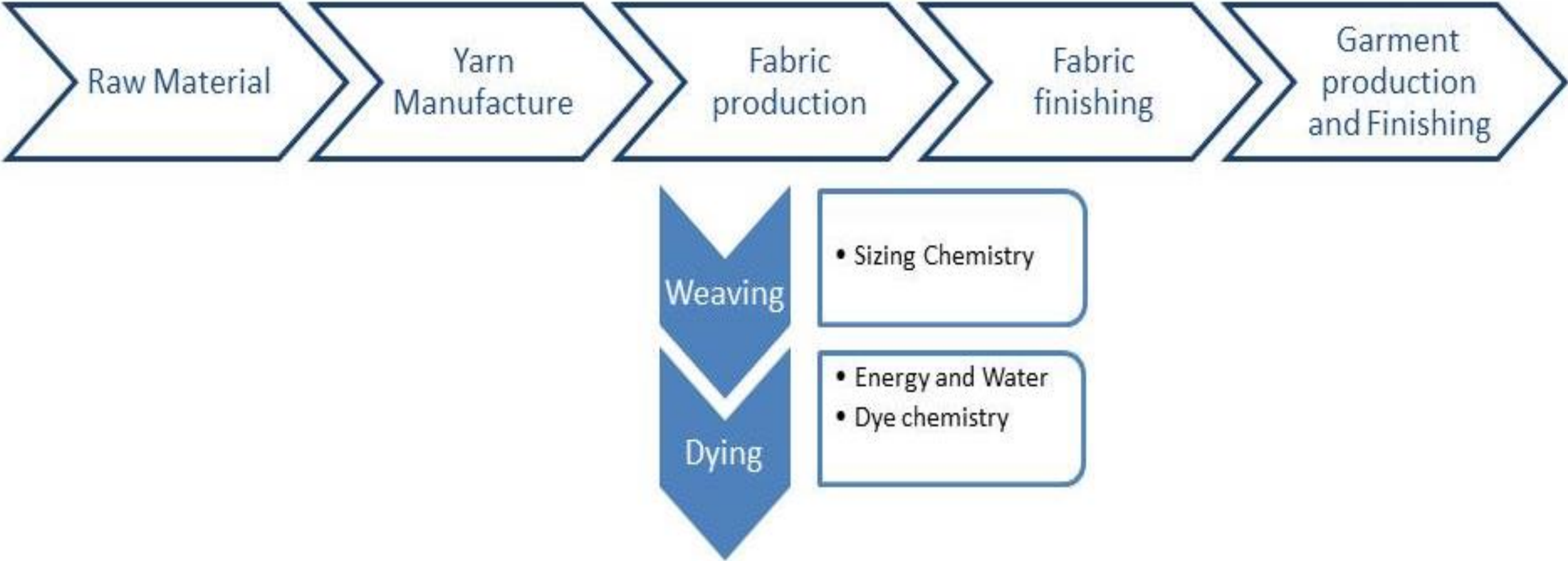
	 MECHANICAL METHODS USE PHYSICS	 CHEMICAL METHODS USE CHEMISTRY	
PROCESS	 <i>Downcycling</i>	 <i>High Value Recycling</i>	
INPUT FIBER	 <i>Plant Based</i>	 <i>Animal Based</i>	 <i>Oil Based</i>
# OF FIBERS	 <i>Single Fiber</i>	 <i>Two Fiber</i>	 <i>Multi Fiber</i>
OUTPUT	 <i>Non-Wovens</i>	 <i>New Yarn</i>	 <i>New Yarn</i>


©REnvolve Waste 2017



SOURCE: REVOLVE WASTE 2017, TRACI KINDEN, [HTTP://REVOLVEWASTE.COM/](http://REVOLVEWASTE.COM/)

ADOPTION RELIES ON PARTNERSHIP WITH TEXTILE INDUSTRY

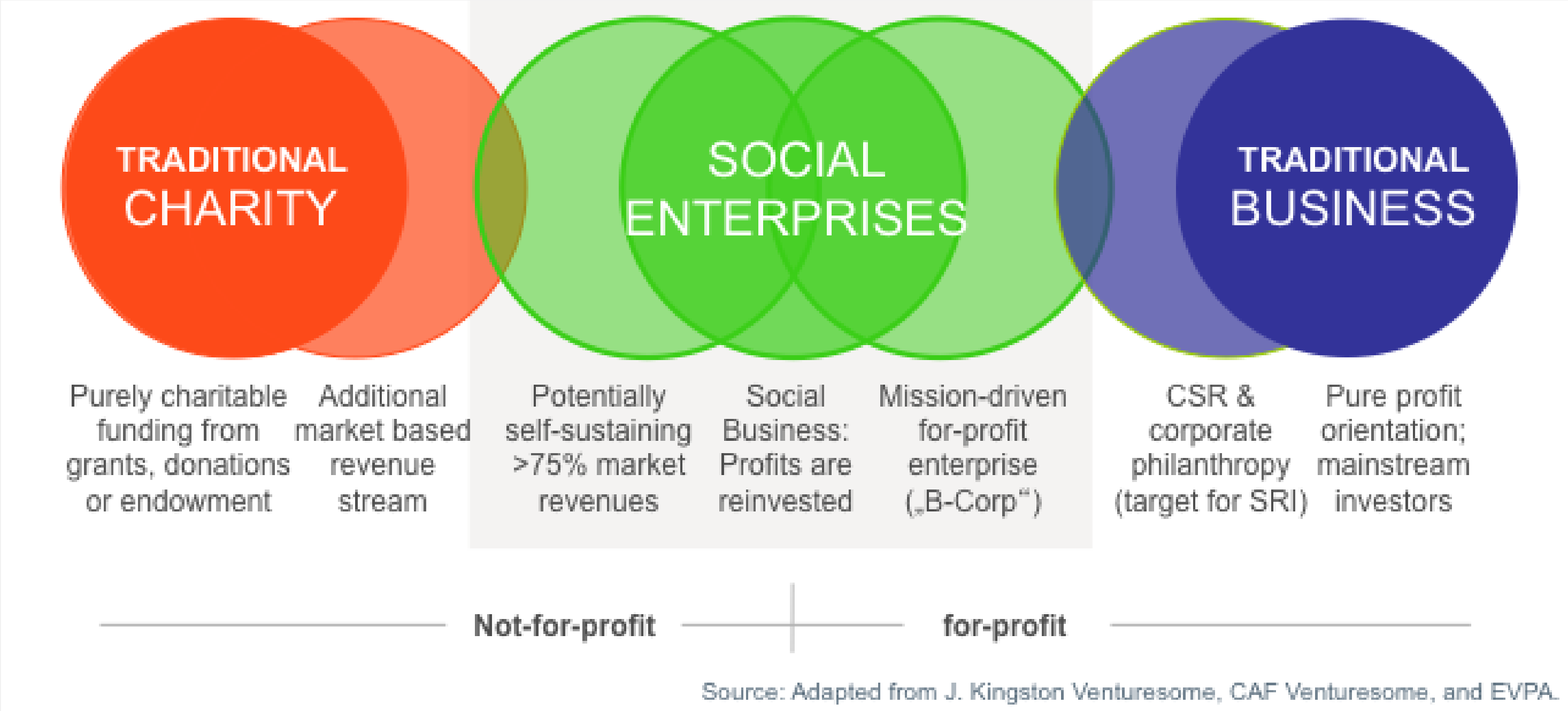


COMPANY	ACCELERATORS, INCUBATORS AND INVESTMENT FUNDS
Alante Capital	Venture capital fund focused on sustainable apparel.
Eureka Innovation Lab	Levi Strauss' testing and development facility that pilots sustainable technologies and supports entrepreneurs through their Collaboratory program.
Fashion for Good	Fashion for Good convenes brands, producers, retailers, suppliers, non-profit organizations, innovators and funders in a global platform for innovation.
Future Tech Labs	Fashion innovation platform with staff in Russia, Europe and the U.S.
Green Chemistry and Commerce Council	Nonprofit organization that drives the commercial adoption of green chemistry across different industries.
Hydra Ventures	The corporate venturing arm of Adidas supporting technology that can improve product performance, customer experience and sustainability for Adidas products.
New York Fashion Tech Labs	Nonprofit program co-founded by Springboard Enterprises and fashion retailers to support women-led companies that have developed innovations at the intersection of fashion, retail and technology.
Safer Made	Venture capital fund that invests in teams that bring safer products and technologies to market (and the authors of this report).
The H&M Global Challenge Award	Accelerator program to promote circular innovation in the textile and apparel sector.
Tin Shed Ventures	Patagonia's investment arm supporting companies and projects that improve the environmental performance in the outdoor apparel and equipment space.

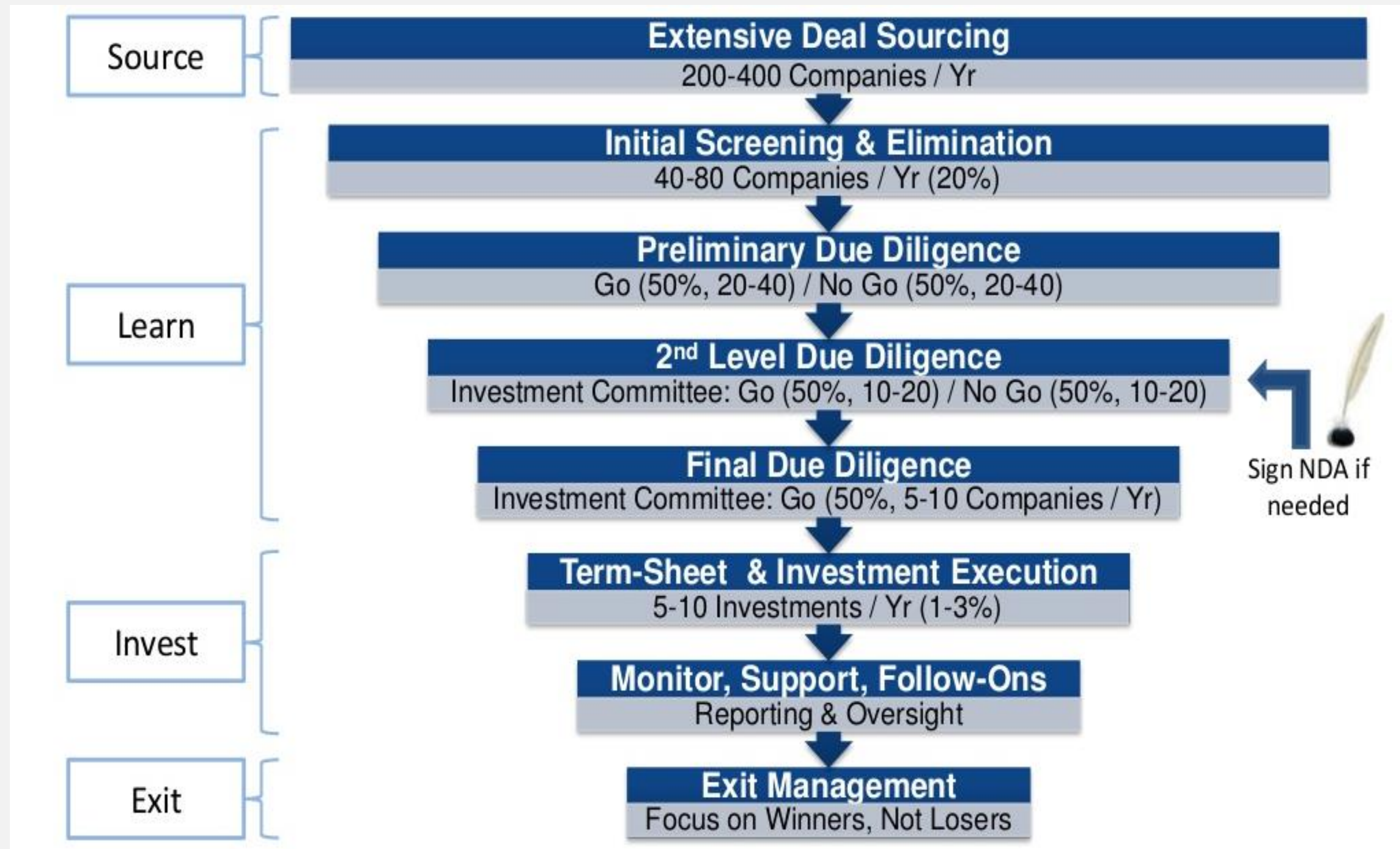
FINANCE: PROVIDE MONEY TODAY TO BUILD THE BUSINESSES OF THE FUTURE



A SPECTRUM OF BUSINESSES AND INVESTMENT OPPORTUNITIES



THE VENTURE CAPITAL PROCESS



OUR INVESTMENTS



Sustainable
packaging



MIMIKAI
INSECT REPELLENT

Effective and safe
alternative to DEET



Our Team



Adrian Horotan is an experienced early stage investor.



Marty Mulvihill is a well respected green chemistry expert.

Terms & Details

\$20-\$30M

Target Fund
Size

10-15

Target Number of
Portfolio Companies

FEB 2017

Initial Close

Investors

Safer Made's investors include 27 foundations, family offices, individuals and one corporate investor.

www.safermade.net

