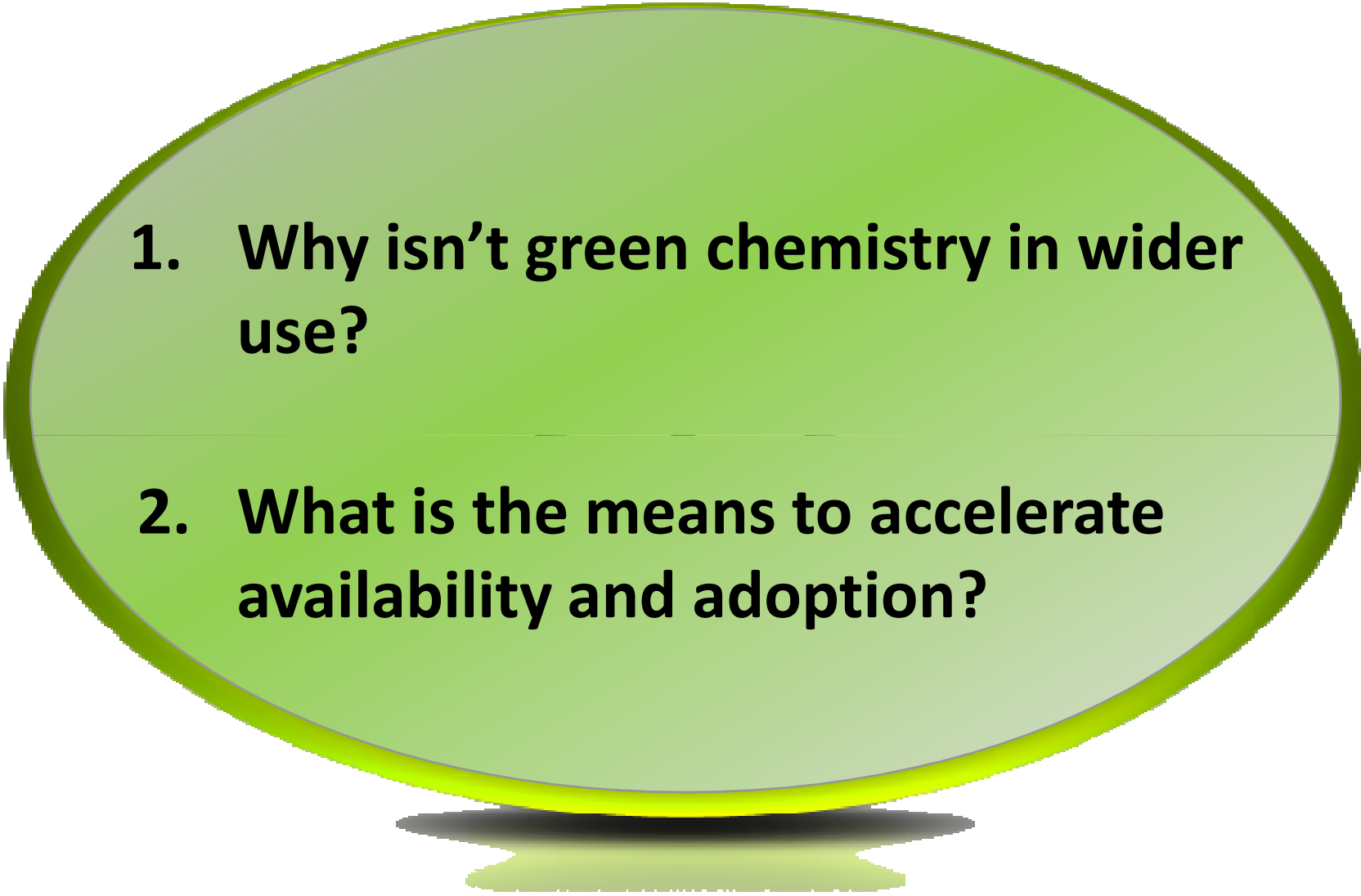

BARRIERS TO GREEN CHEMISTRY ADOPTION AND MEANS TO ACCELERATE GROWTH ALONG THE SUPPLY CHAIN

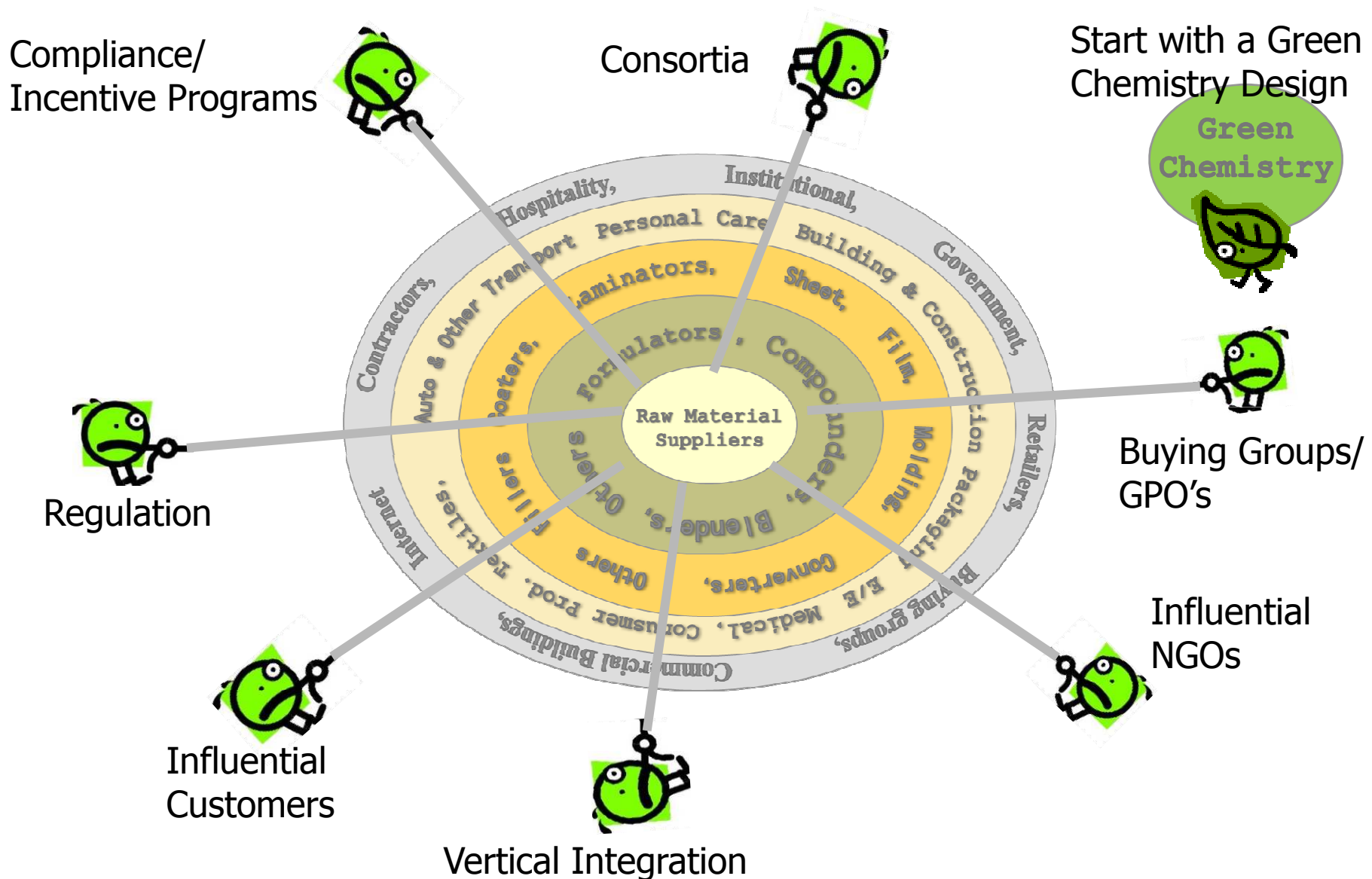
Presentation for
The Umweltbundesamt: Sustainable Chemistry Conference
Berlin, Germany
September 24, 2015

By
T. Fennelly & Associates. Inc.
1-763-559-1863
Minneapolis, MN, USA
tfennelly@comcast.net

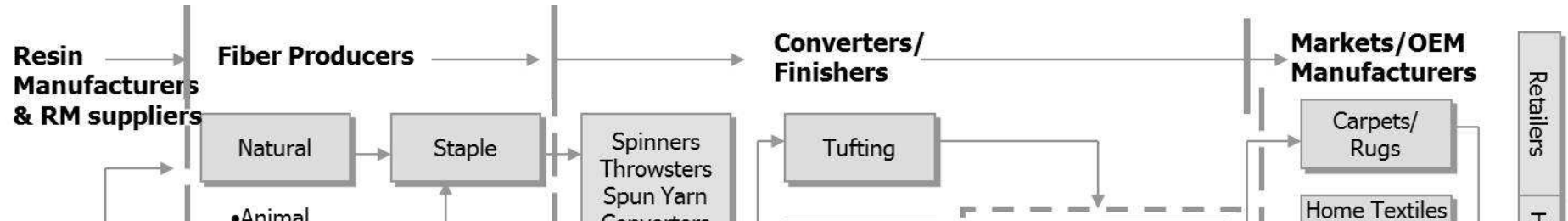


-
- 
- 1. Why isn't green chemistry in wider use?**
 - 2. What is the means to accelerate availability and adoption?**

Despite efforts to accelerate green chemistry use, adoption rates remain low.



Textile Supply Chain Example



And before you begin **green chemistry** discussions,
define what you mean by **green chemistry**

IT ISN'T ESSENTIAL TO PICK A "RIGHT" DEFINITION.
IT IS ESSENTIAL TO BE ON THE SAME PAGE.

Polymer
Modifiers

- Glass
- Ceramic
- etc.
- Organic
 - Cellulosic
 - »Acetate
 - »Rayon
 - »etc.
 - Non-cellulosic
 - »Acrylic
 - »Nylon
 - »Polyester
 - »Aramid
 - »Etc.

Note: Distributors
are used at
multiple points
in the chain

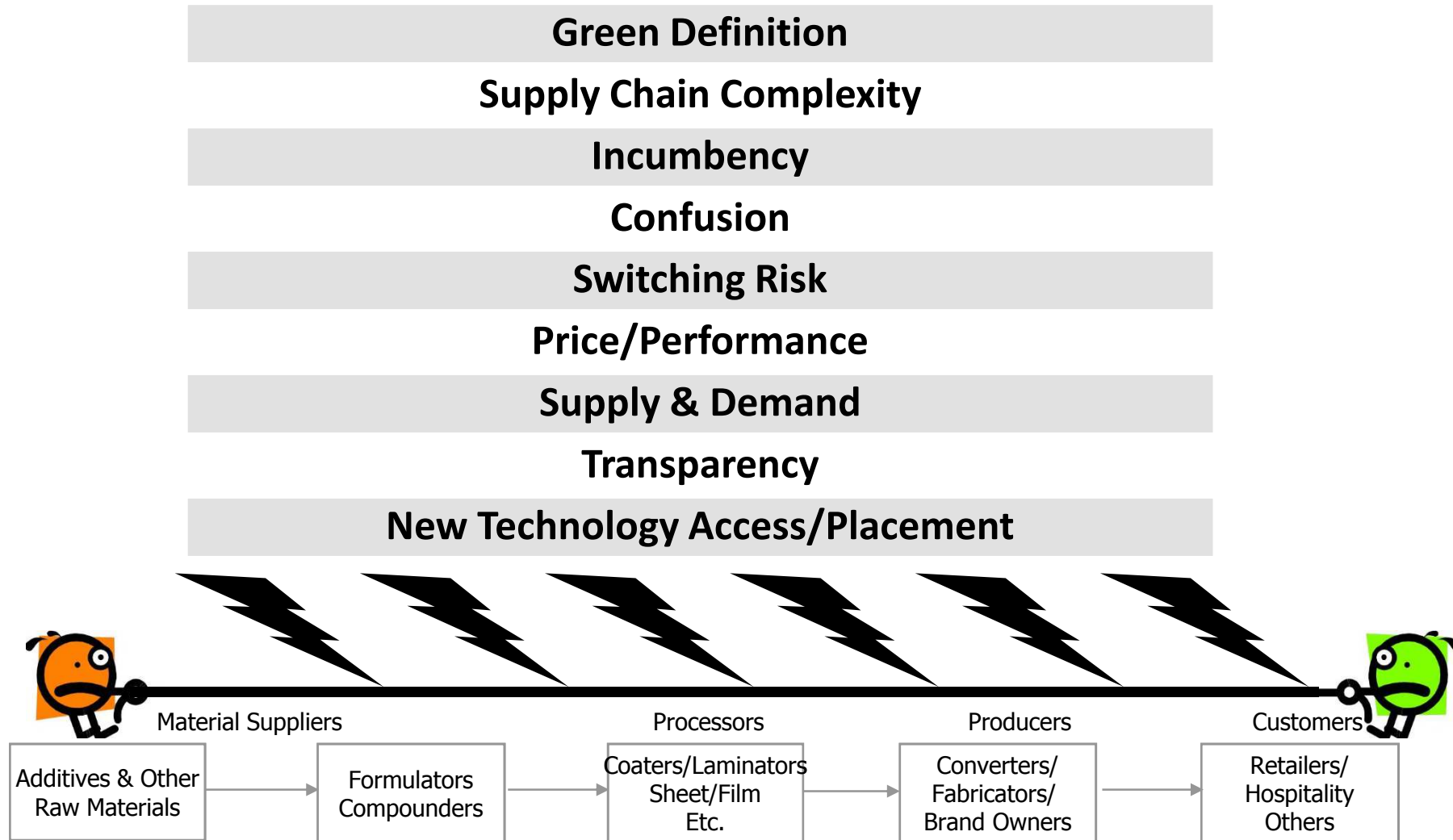
Additional raw materials used in converting

Films

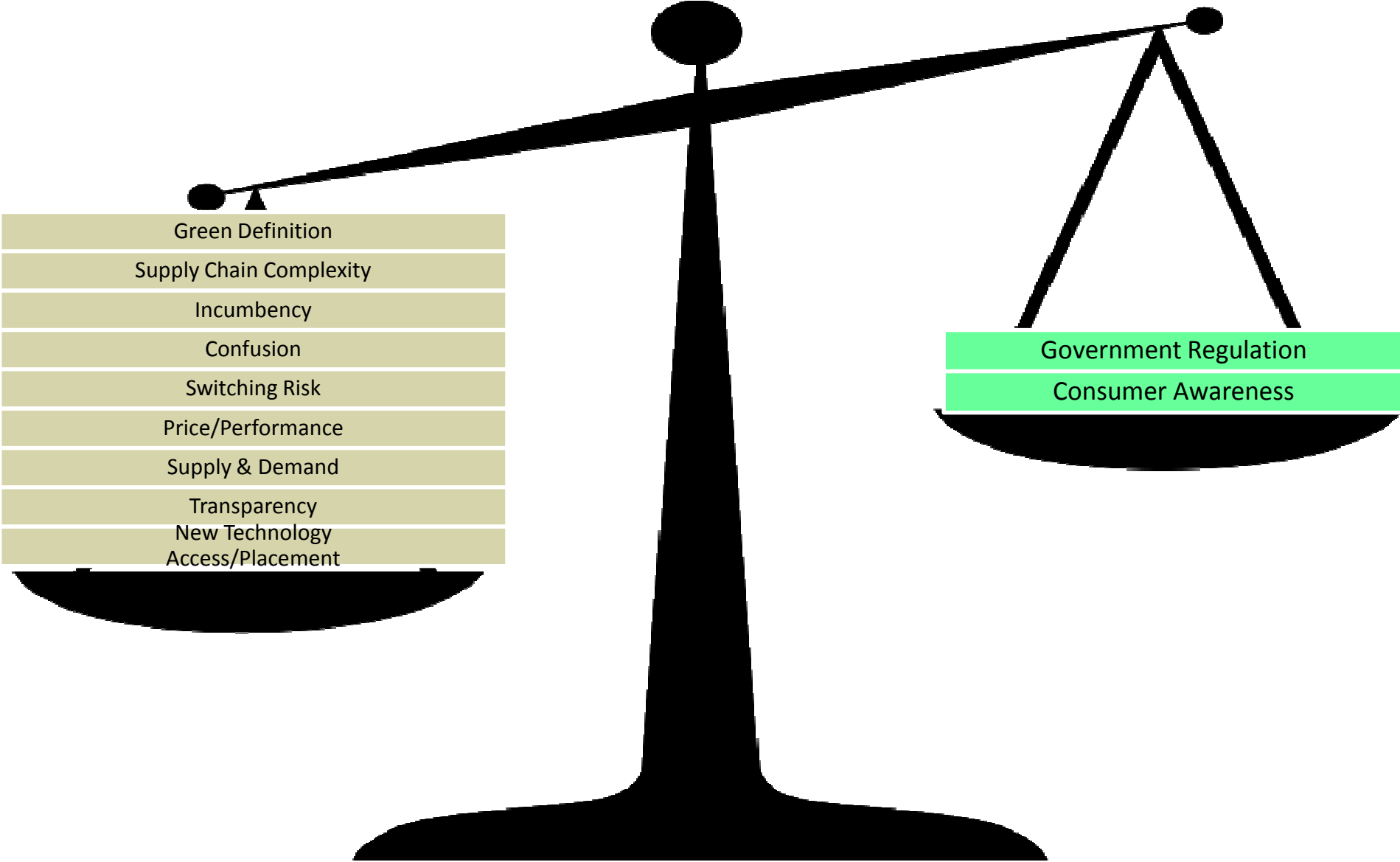
Adhesives
Coatings
Etc.

JC Penny
Wal-mart
Military
Etc.

TFA Identified 9 key issues that misalign the supply chain and slow green chemistry adoption



Currently, misalignment issues far outweigh the main drivers



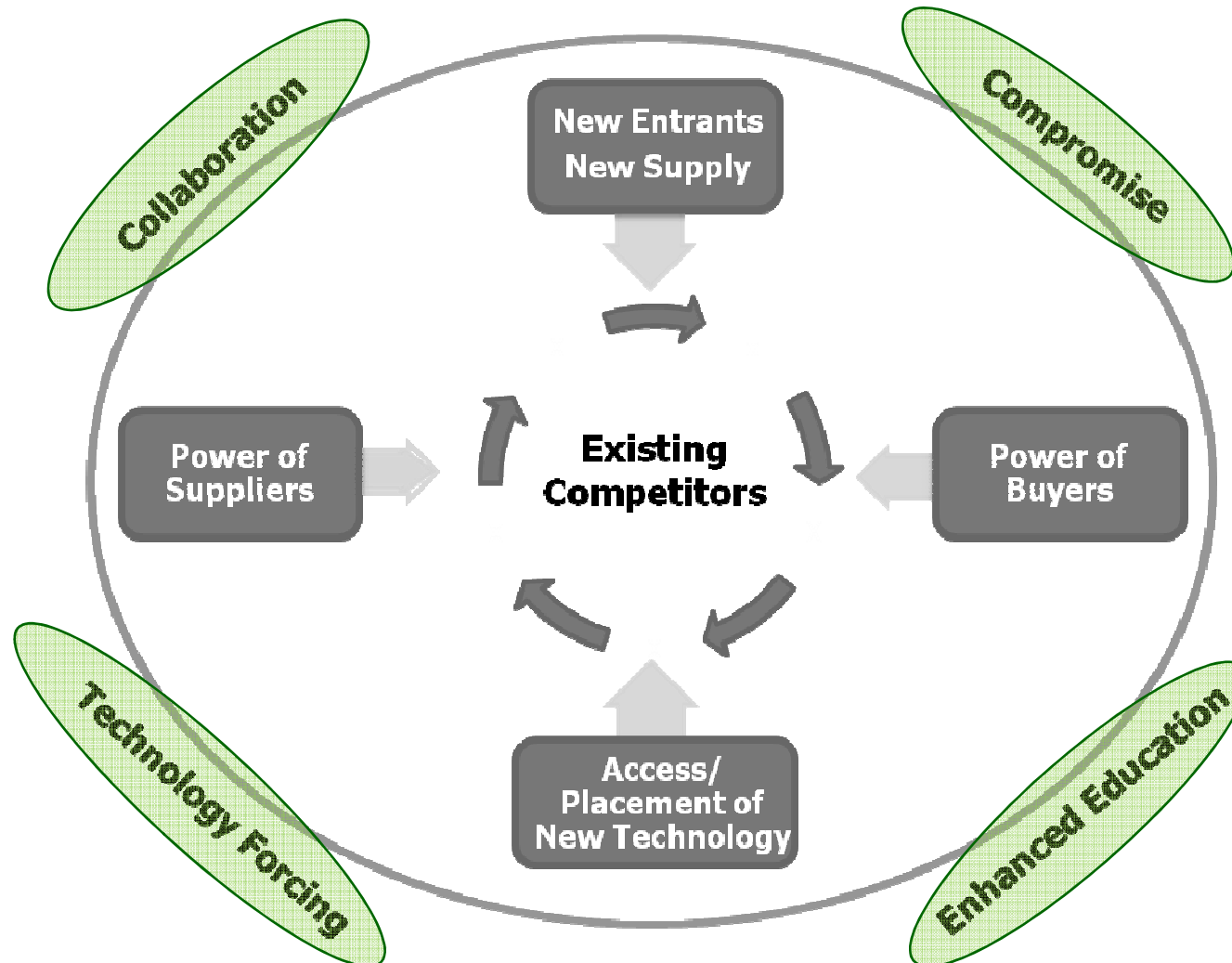
Traditional thinking drives behavior and decision making...



Michael Porter's 5-forces model

...but models can be adapted for beneficial change

- We've identified four green chemistry accelerators
- These tools can be applied to cooperative efforts based on 5-forces principles



Accelerator: Collaboration

COLLABORATION

Provides a way to close the gap between what players in the supply chain say they want and what others in the supply chain can deliver.

Accelerator: Compromise

COMPROMISE

Acceptance of the notion of continuous improvement.

A starting point, not the ultimate goal, but a step in the right direction.

Accelerator: Technology Forcing



**TECHNOLOGY
FORCING**

Decision makers with “buyer power” force change.

In effect, they create de facto regulations.

Accelerator: Enhanced Education

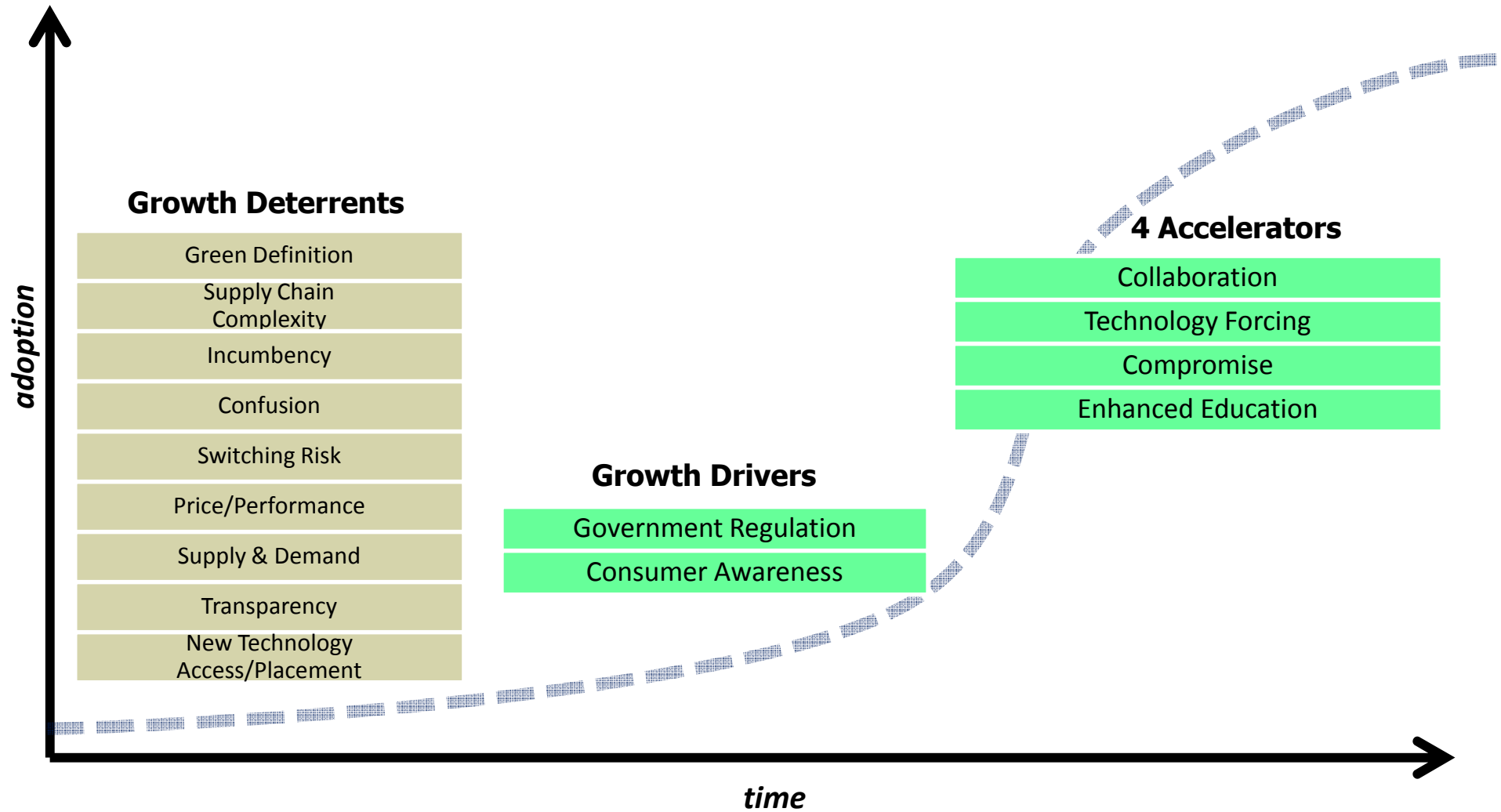
ENHANCED EDUCATION

Better educated consumers can accelerate demand for green chemistry.

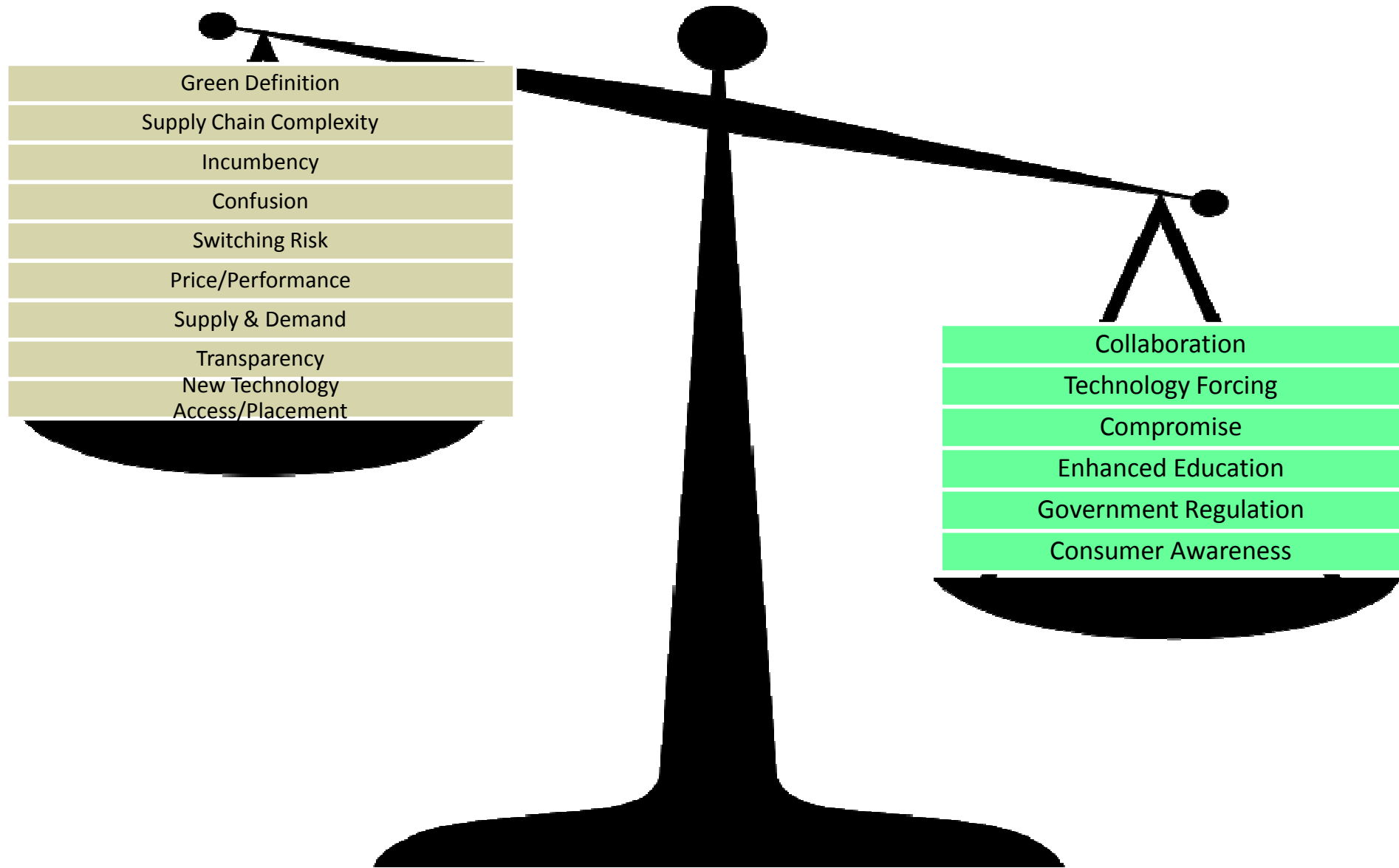
A workforce better trained in green chemistry can accelerate adoption.

Starting with a green chemistry design is the fastest way to accelerate adoption.

The four accelerators should be part of the toolbox to drive change



And can tip the balance in favor of change...



To access the full report:

**BARRIERS TO GREEN CHEMISTRY ADOPTION AND MEANS TO ACCELERATE
GROWTH ALONG THE SUPPLY CHAIN**

please refer to the GC3 website

<http://www.greenchemistryandcommerce.org/>

or contact

T. Fennelly & Associates, Inc.

1-763-559-1863

Minneapolis, MN, USA

tfennelly@comcast.net