

Extended Producer Responsibility (EPR)



VINAY GOYAL
PSES

Disclaimer



- **This presentation has nothing to do with my present or previous employers and their internal practices**
 - All the companies I worked for or with, were successful companies in their respective fields
- **This presentation is based on presenter's own interpretation and experience**
 - This is a general presentation
 - Please seek advise/opinion from a professional/legal counsel, if any of the contents are currently or potentially applicable to you (your organization)

Terminologies



- **Too many acronyms**
- **Two most important ones are:**
 - Supply Chain Management (SCM)
 - Product Life Cycle Management (PLM)

Supply Chain Management - SCM



WHAT IS SUPPLY CHAIN

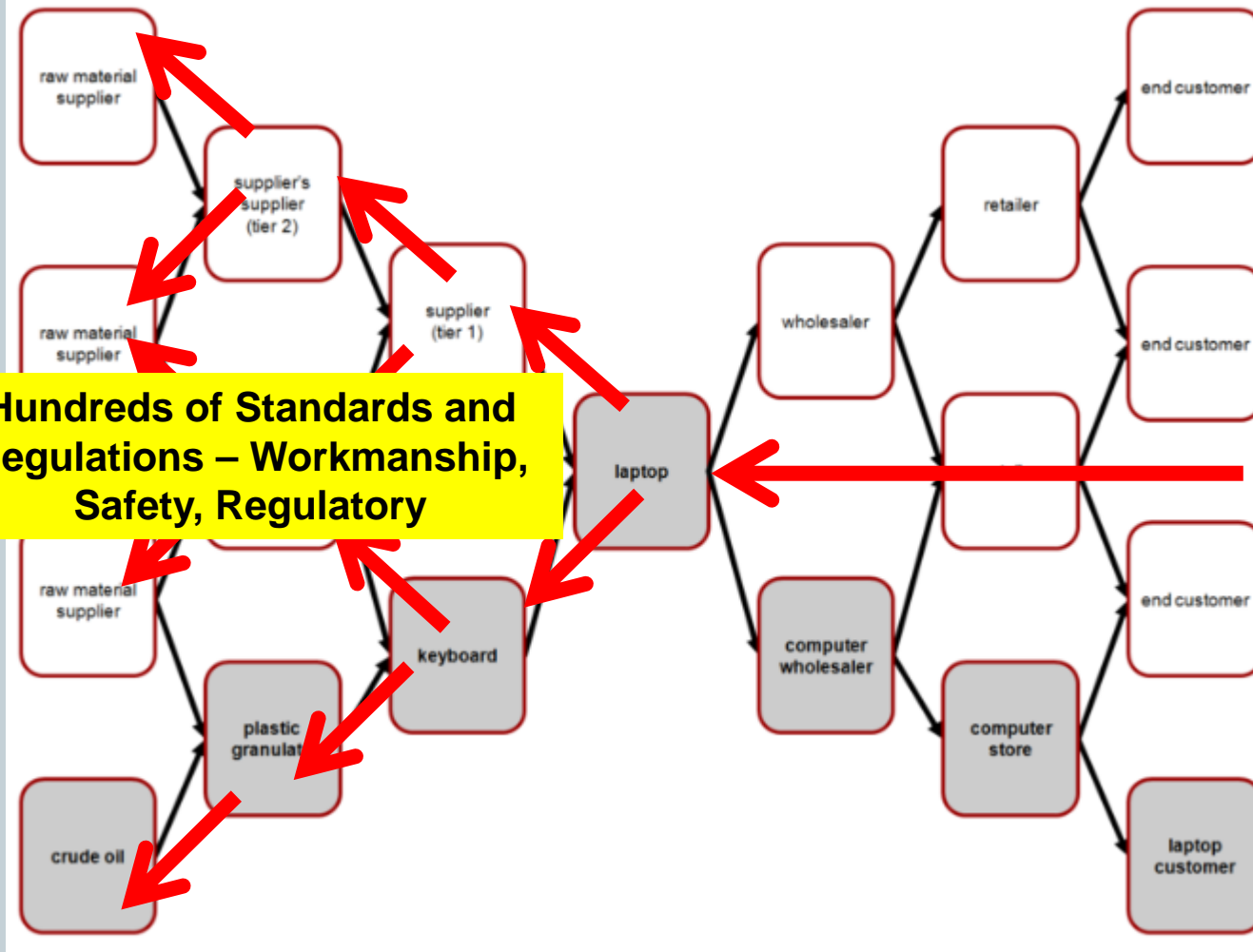
Key Definitions



- A **supply chain** is a system of
 - Organizations,
 - People,
 - Activities,
 - Information, and
 - Resourcesinvolved in moving a product or service from supplier to customer

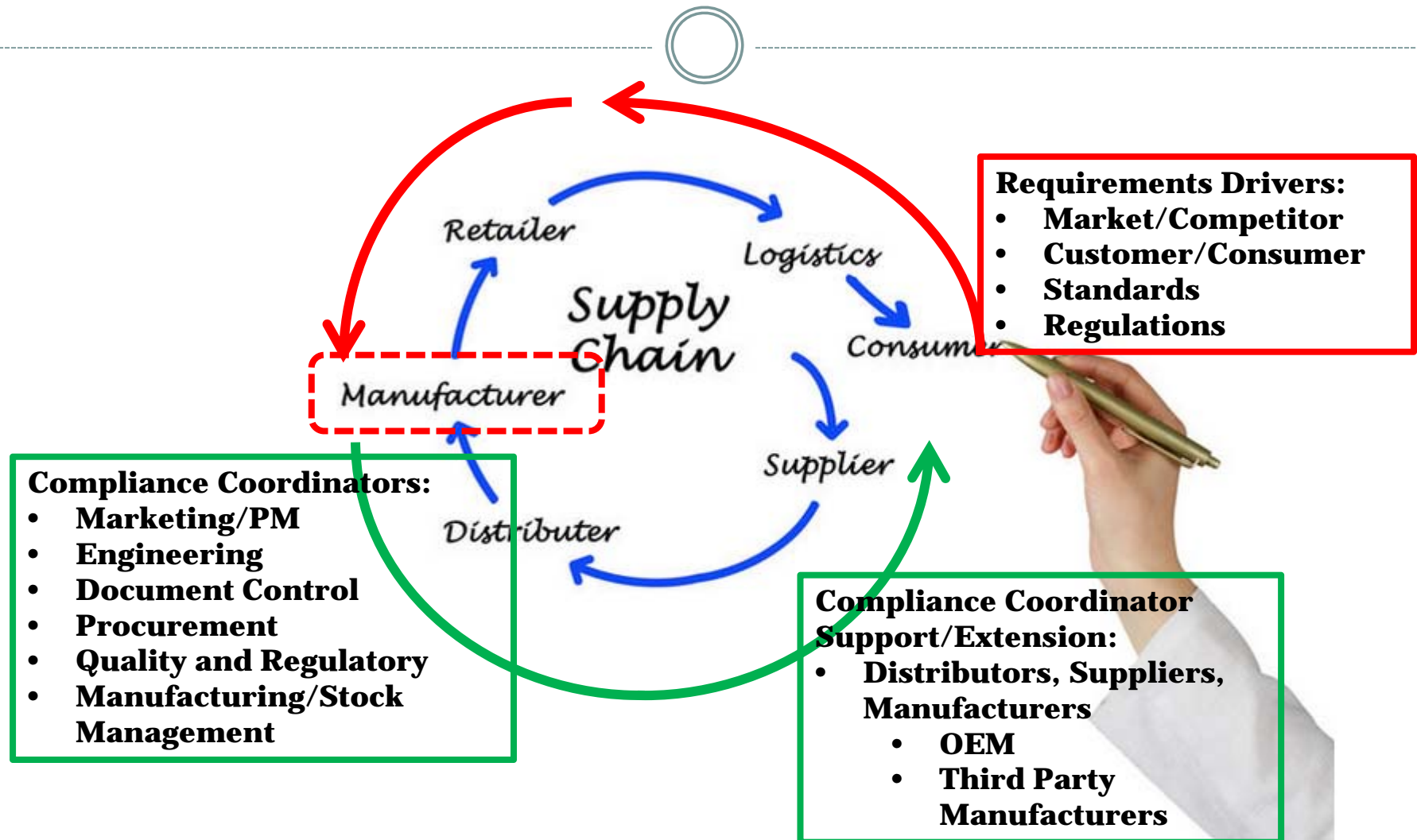
https://en.wikipedia.org/wiki/Supply_chain

Simplified Complex Picture of SCM

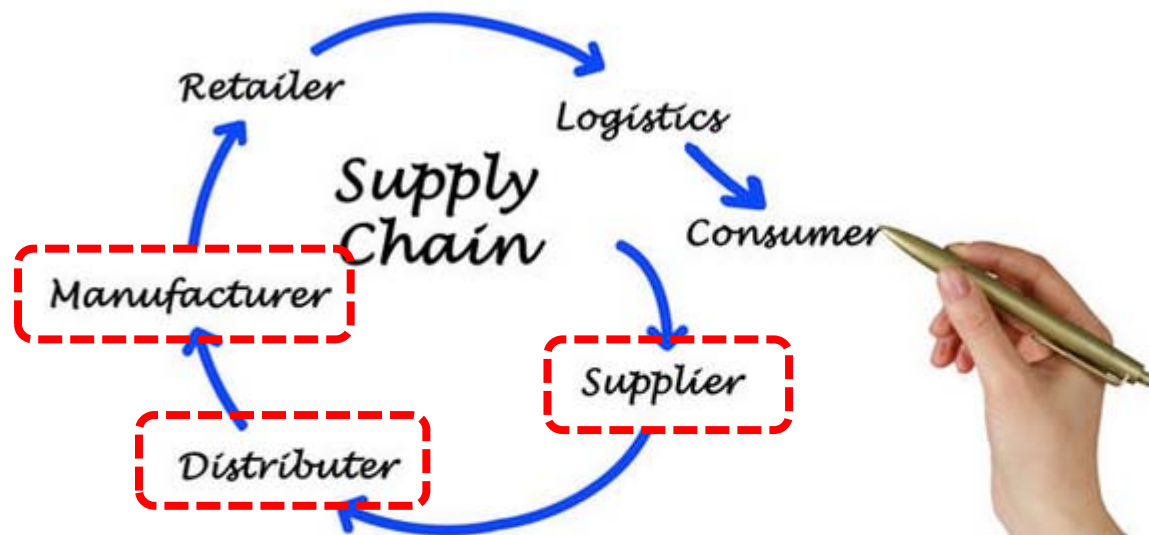


https://en.wikipedia.org/wiki/Supply_chain

Supply Chain Management - SCM



Supply Chain Management - SCM



- ✓ Treat suppliers as an extension/part of your operation
- ✓ Supplier is not limited to material, part, sub-assembly or assembly supplier,
- ✓ A Supplier can be a short or long term contractor working at your facility or remotely

Supply Chain Management - SCM



PRODUCT LIFE CYCLE MANAGEMENT

PLM



- Is the process of managing the entire lifecycle of a product from inception, through engineering design and manufacture, to service and **disposal** of manufactured products
- Is a systematic approach to managing the series of changes a product goes through, from its design and development to its ultimate retirement or **disposal**

Technology plays an Important Role



- **SCM PLM integration?**
 - **Constant growth and growing importance of sustainability goals**
 - ✦ **Restriction of Hazardous Substances (RoHS),**
 - ✦ **Registration, Evaluation, Authorization and Restriction of Chemical (REACH), and**
 - ✦ **End of Life Vehicle (ELV)**
 - ✦ **Battery**
 - ✦ **Packaging**
 - ✦ **Most importantly Waste Electrical and Electronic Equipment (WEEE)**

Technology plays an Important Role



- Companies need to be able to document and track what goes in to their products, where it comes from and, often, what happens to it after it reaches the customer
- 4 Key R's – Reduce, recover, reuse, recycle
- Product lot A –
 - Placed before the regulation was enforced (RoHS)
- Product lot B – **Reduce Hazardous Substances and Waste**
 - Compliant to regulation (RoHS 1)
- Product lot C – **Reduce Hazardous Substances and Waste**
 - Compliant to new regulation (RoHS 2)
- At the end of their useful life:
 - How to dispose of - **Recover, Reuse and Recycle based on their compliance status (RoHS 1, RoHS 2) – that may require full traceability either by SN, Lot number, Date Code, Marking etc.**

Product Life Cycle Management

Supply Chain Management

What goes in the Product
(Product/part compliance status, history, traceability)

Supplier:

Cradle to Grave Traceability
– Physical part, movement, product, take back, disposal

The PLM side of the equation provides a viewpoint based on the creation and manufacture of the product while the supply chain management view offers the opportunity to ensure traceability from cradle to grave

EPR



- Is an environmental protection strategy to reach an environmental objective of a
- Decreased total environmental impact of a product,
- By making the manufacturer of the product responsible for the
- Entire life-cycle of the product and especially for the
- Take-back, Recycling and Final disposal

A few Key Initiatives

- Let take an example of:
 - Cell Phones

Rank	Country or region	Number of mobile phones	Population	% of population	Last updated date
	<i>World</i>	<i>Over 5.6 billion</i>	<i>7,012,000,000</i>	<i>79.86</i>	<i>2011</i>
1	China	951,600,000	1,341,000,000	71.0	Oct 2011
2	India	884,371,296	1,210,193,422	73.44	Nov 2011
3	United States	327,577,529	310,866,000	103.9	June 2011
4	Indonesia	250,100,000	237,556,363	105.28	May 2009
5	Brazil	242,200,000	192 376 496	125.79	December 2011

Some people have more than 1 phone

A few Key Initiatives



- **Math:**
 - Estimate is about 5.7 Billion Phones in the world
 - What is the average life of a phone
 - 1.5 years (including normal life, unexpected wear and tear)
 - 3.8 Billion phones go to grave (land fill) every year
 - Weight of the iPhone = 200 grams
 - That means 760,000 ton will end up in the landfill
 - The iPhone 6s Plus = 6.77 ounces, iPhone 7 Plus weighs 6.63 ounces; That's a 2.1% weight reduction (15960 ton less waste)

Population	Phones in Use	Avg life of a phone (Yrs)	Weight Kg	Phones discarded	Tons going in landfill
70000000	5700000000	1.5	0.2	3800000000	760000

A few Key Initiatives



- **Math:**
 - What is the heaviest part in your phone
 - Battery
 - Do the battery contain hazardous substances?
 - Is it OK to dump batteries anywhere?

A few Key Initiatives



- **Math:**
 - What is the next biggest waste when you discard your phone
 - Chargers?
 - Do you typically save them for the new phone?
 - How many chargers do you have?
 - Home, office, may be more....
 - Car Chargers

A few Key Initiatives



- **Math:**
 - What is the next biggest waste that people do not pay attention to:
 - Packaging
 - ✦ ~ 155mm x ~ 90mm x ~60mm
 - iPhone size
 - ✦ ~138mm x ~ 67mm x ~ 7.1mm
 - Keep in mind when shipping – besides weight another factor that is important = volume (air space)
 - Plus literature, primary, secondary, tertiary packaging etc.

Packaging

- **Levels of details:**

- Internal part number
- Description
 - ✦ Primary
 - ✦ Secondary
 - ✦ Tertiary

- **Component Elements breakdown:**

- Bottle
- Tip
- Cap
- Temper Proof Seal
- Insert
- Box
- Outmost box (of any)

- **Metal**

- Brass, Steel, Tin, Other

- **Natural**

- Ceramic, Rubber, Textile, Wax, Wood, Other

- **Paper**

- Bleached Corrugate/non corrugated, Bleached paperboard corrugate/un-corrugated, Half Bleached, Magazine, Molded pulp, Newsprint, others

- **Plastics**

- HDPE, LDPE, LLDPE, Mixed Resin, other etc.

- **Others**

Packaging

- **Majority Material Type**

- Percentage

- **Majority (level 2, 3, 4) Material Type**

- Percentage

- **Pre Consumer recycled material**

- Recycled in original form
- Ex: Plastic bottle reuse

- **Post Consumer material**

- Recycled
- Ex: Plastic bottle is modified, melted

- **If Plastic, form:**

- Film, wrap, Bags, Rigid, Component (bottle, jug, tubs, lids, closures, trays, cups etc.)

- **Color**

- ✦ Glass or Plastic
- ✦ Amber
- ✦ Blue
- ✦ Red
- ✦ Clear
- ✦ Orange etc.

Challenge



- Each member country has their own competent authorities
 - Government Agency
 - Non-Government Agency
- May be more than one
 - Some countries have more than one authorities
- Reporting
 - Language, format etc.
- Timeline
 - Quarterly, bi-yearly, yearly, etc.
- Fee:
 - Varies based on Primary, Secondary, Tertiary, Material Type, Pre and post Consumer recycled material etc.
- Keeping it current
 - Systematic approach, database, training (internal and external) , BOM structuring etc.

Paris Agreement



- **2015 United Nations Climate Change Conference**
- **First time in over 20 years of UN negotiations, a binding and universal agreement on climate, from all the nations of the world**
 - **Global warming temperature may go up to 2.7 deg C by 2100**
 - **Keep it down to 1.5 deg C**
 - ✦ **Requires zero net anthropogenic (resulting due to human involvement)**
 - ✦ **The 1.5 °C goal will require zero emissions sometime between 2030 and 2050, according to some scientists**

Bottom Line



- **Global warming is a reality - We can run but can not hide**
- More Retailers, Distributors Dealers and countries are coming up waste reduction program
 - Lesser use of natural resources and replenishing (maintaining a balance)
 - Walmart (Commercial)
 - ✦ <http://corporate.walmart.com/global-responsibility>
 - Kaiser (Medical)
 - ✦ http://www.csrwire.com/press_releases/22095-Kaiser-Permanente-Turns-Green
- EPR is a regulatory (legal) requirement
 - Promote diverting of waste from landfills to reusing, recycling and recovering treatments and every country in the world is coming up with their own requirements

Questions

