



**Materiali e Tessili innovativi per la
comunicazione e l'elettronica**

Paolo Canonico

Summary:

- 1. Corporate Presentation**
- 2. Business Case 1:
Acoustic**
- 3. Business Case 2: Touch
Panel**





Corporate Presentation

SAATI spa

- **Year of established:** 1935
- **Headquarter:** Appiano Gentile (CO), Italy
- **Core business:** development, production and commercialization of highly advanced textile and chemical products
- **Employees:** 850
- **2012 Turnover:** 134 million €





▲ Headquarter

SAATI spa,
Appiano Gentile, (I)

◆ Production plants

- SAATI France (F)
- SAATI Americas, (USA)
- SAATI China, (PRC)
- SAATI India
- SAATI Duetchland (D)

● Sales Offices

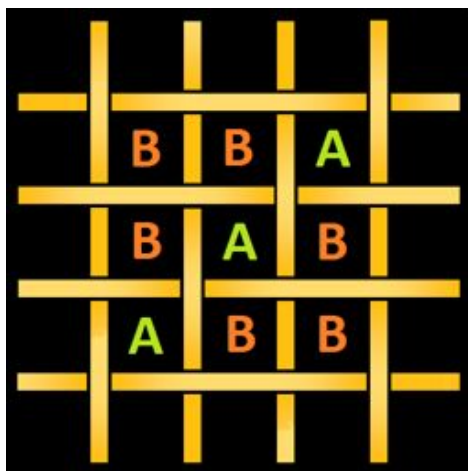
- SAATI Iberica S.A (E)
- SAATI China, (PRC)
- SAATI Americas, (USA)
- SAATI India
- SAATI Russia
- SAATI GmbH/Fugafil GmbH (D)
- SAATI France (F)
- SAATI UK
- SAATI Korea (SK)

Raw material: extruded monofilament PET, PA, PP, PPS, PEEK

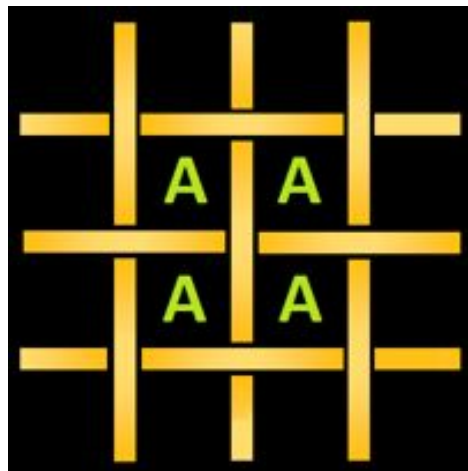
Mesh Opening: from 7 to 2000 micron

Mesh Count: from 5 to 250 yarn/cm

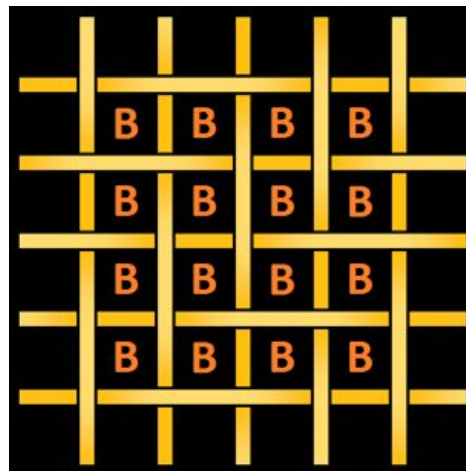
Production Process: Warp preparation, Weaving, Washing, Thermosetting, (Surface treatments), Quality Control, (Fabrication)



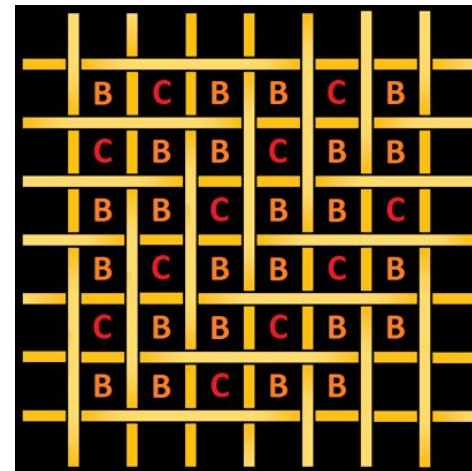
twill



Plain
weave



dutch 2-2



dutch 3-3

SAATI is active in the market with **Five Divisions**, which are focused on specific market niches: Filtration, Screen Printing, auxiliary Chemicals, advanced Composites and Protection.

FILTRATION



PRINTING



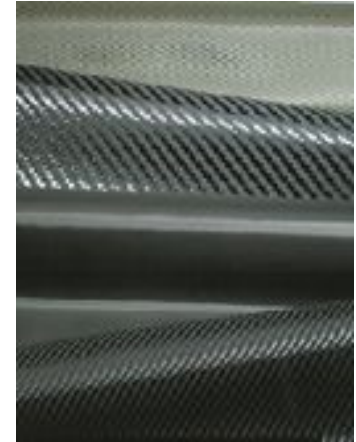
CHEMICALS



PROTECTION



COMPOSITES



SAATI is specialized in the production of **technical fabrics, surface treatments and fabricated parts** for **filtration, separation** and **conveyor belts**

It offers the most precisely woven fabrics, incorporating the latest in technology to guarantee the highest quality and consistency.

The products are used in a wide range of different fields:

WATER



APPLIANCE



ACOUSTIC



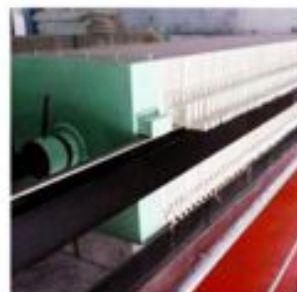
HEALTHCARE



AUTOMOTIVE



**PROCESS
FILTRATION**



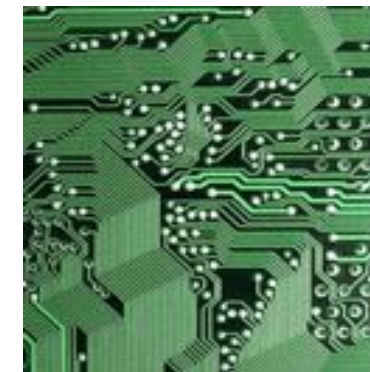
**FOOD &
MILLING**

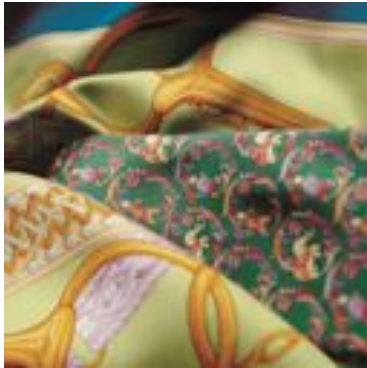


SAATI supplies highly precision woven fabrics in Polyester and Polyamide fibers with excellent dimensional stability, uniformity, durability, and enhanced characteristics and performances thanks to special and proprietary finishing treatments.

These technical precision fabrics are used in the screen printing process, especially for the following sectors:

Graphic, Textile, Tile industry, Electronic, Glass, and CD.





Textile
(continuous)



Textile
(T-Shirt)



Ceramic
(Pottery)



Ceramic
(Tile)



Graphic
(Large Format)



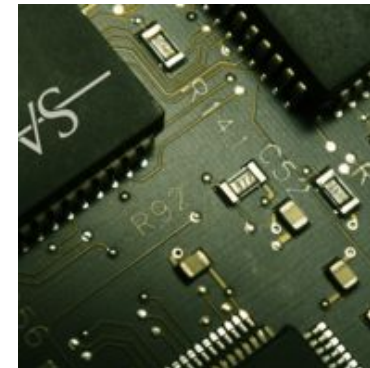
Glass



CDs



Labels



PCB



Touchpanel

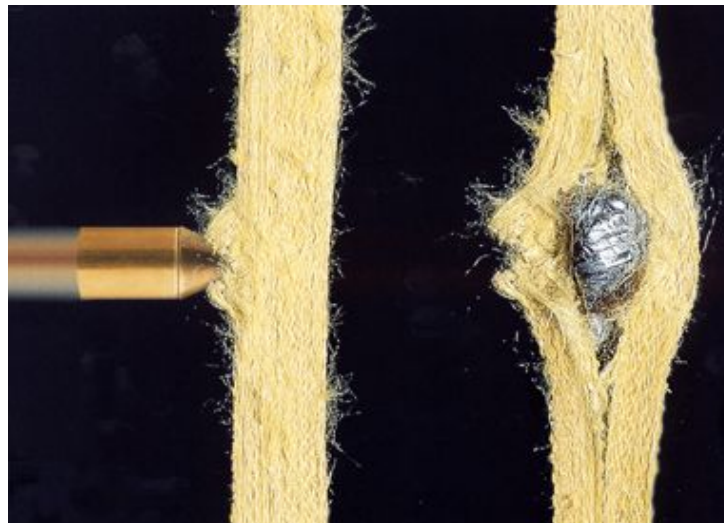
SAATI Chemicals formulates and produces:

- photosensitive films and emulsions
lacquers
- Mesh pretreatments
- Adhesives
- Fillers/blockouts
- Reclaiming chemicals

SAATI Chemicals has been focused on screen printing, offering product lines for the most diverse and demanding application from display and industrial graphics to ceramic tiles, circuit boards, optical discs, glass and textiles.



The Protection Division is focused on the production of panels and laminate materials in **aramid fiber** with unique resin finishing processes for multi-threat protection, both for personal protection and light-armoring systems.



The **Composites Division** offers a wide range of dry fabrics and tapes in carbon, aramidic, polyethylene, glass fibre and hybrid systems.

Moreover SAATI formulates its own **resin systems** for the impregnation of fabrics with **epoxy, phenolic, vinylester and polyester** formulations.

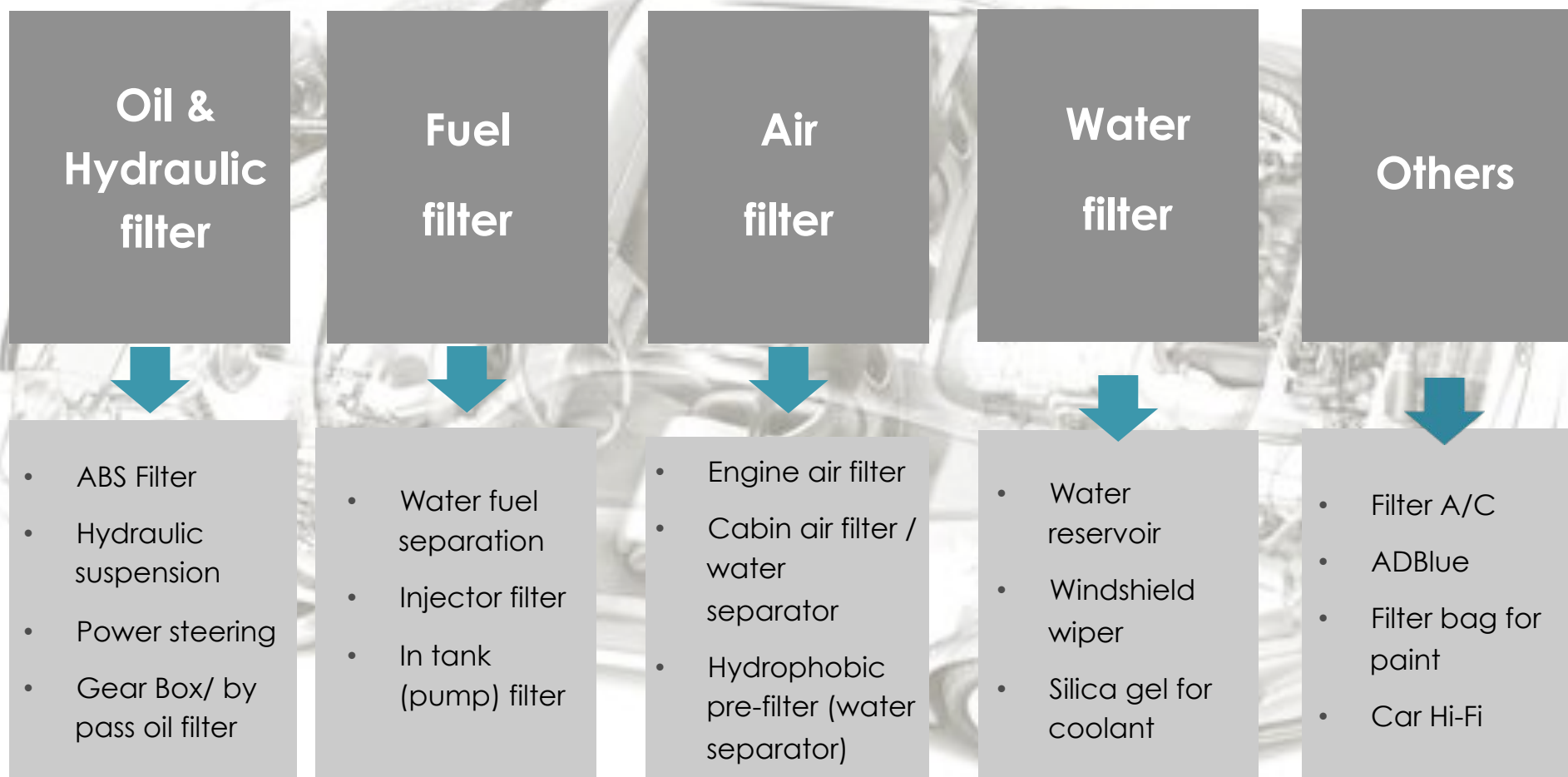
Main applications are: marine, aerospace, automotive and rail transport industries, sports equipment producers, construction builders and even robotics.





Focus on Filtration Division

SAATIMOTION products are used in several applications such as:



SAATI is environmentally conscious, especially for water that is regarded as one of the most precious resource on Earth.

SAATIAQUA range of products are designed to suit every water filtration needs.



Washable net
cartridges



Pitchers



Waste Water
Treatment:
Disc & Drum
filter



Irrigation



Aquaculture

SAATI's products represent a considerable advantage for appliance designers, injection molders and components manufacturers. SAATIDOMUS' filter elements are used in a wide range of applications such as:



Dishwasher



Coffee machine



Washing
& Drying
machine



Vacuum
cleaner



Fridge &
Others

SAATICARE fabrics are the favorite choice in applications such as infusion and transfusion filters, microaggregate filters, arterial and venous filters in oxygenator reservoirs and blood bags.



Biopsy bag



Arterial Filter
Cardiotomy
Oxygenators



Spirometer
Infusion &
transfusion
filters



Blood bags



Test Strips

SAATI ACOUSTEX fabrics are the ideal choice for acoustic applications such as:



NOKIA FOXCONN®

SHURE®

BRADY®
WHEN PERFORMANCE MATTERS MOST™

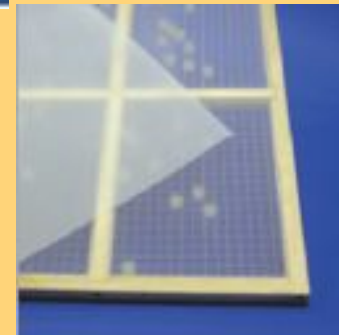
beyerdynamic

The **SAATI MIL** line is ideal for the exacting screening and separating procedures used in the food, chemical, pharmaceutical, and mining industries.



**Bonded
Frame**

Sifter Sleeves



SAATI BELT products are used in wide range of applications such as food processing, textile printing, packaging and process filtration.

**Conveyor
belt**



**Drying
belt**

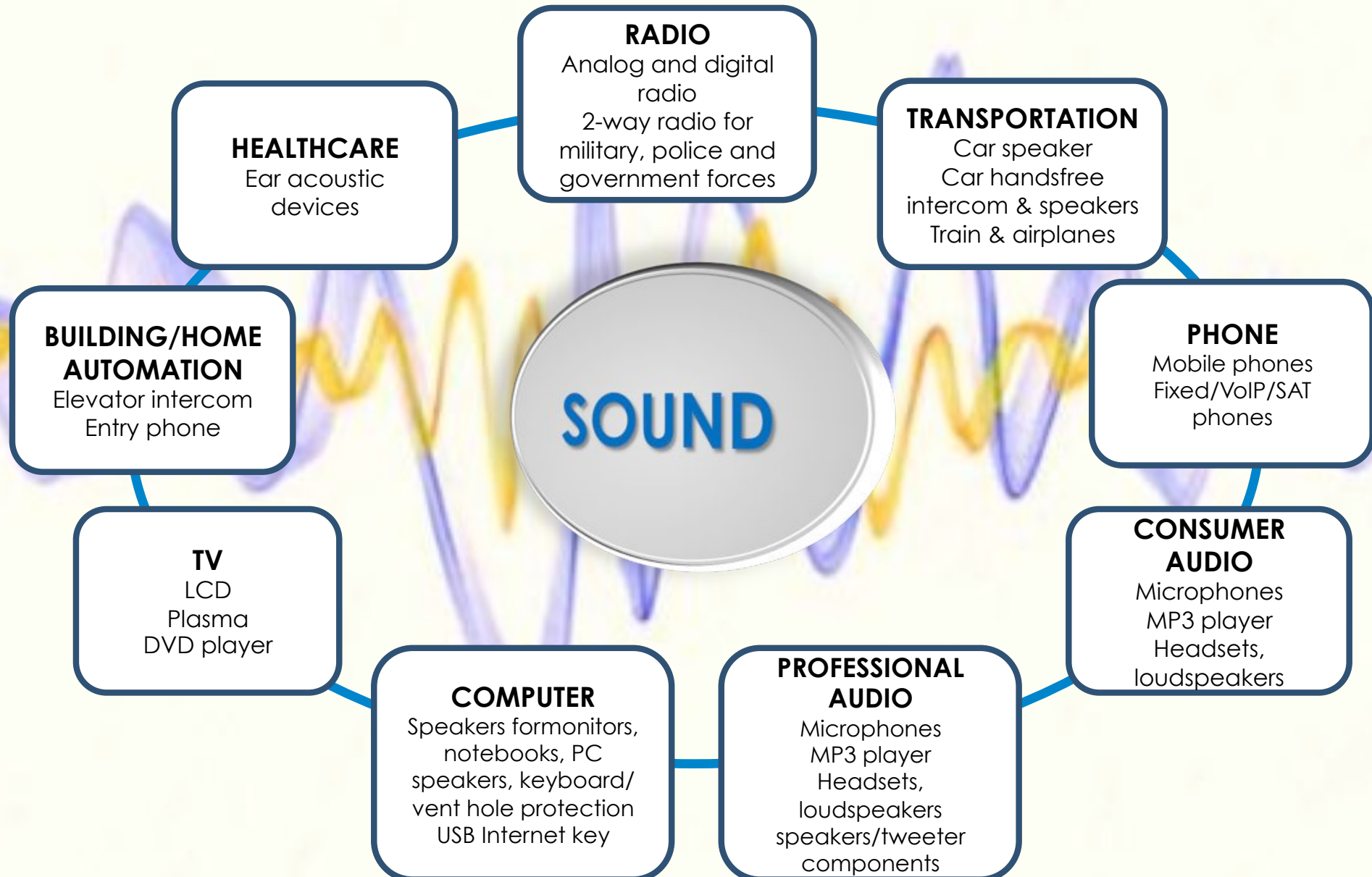



















































Business Case 1:

Acoustic

ACOUSTICS MARKETS

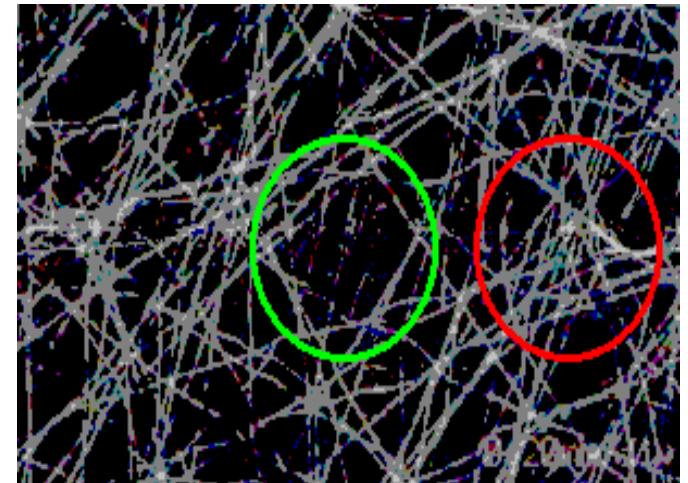
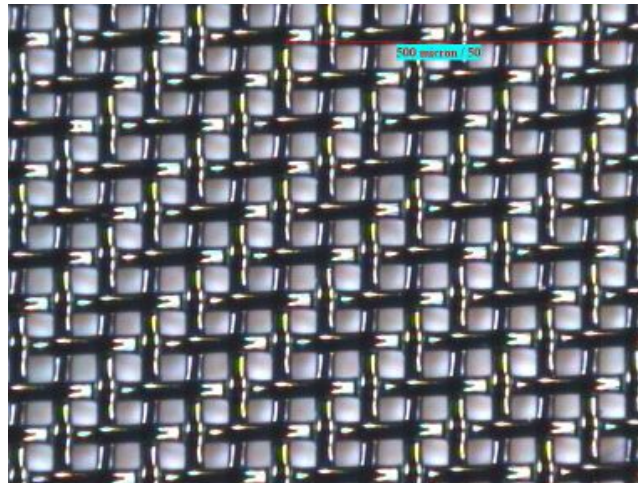
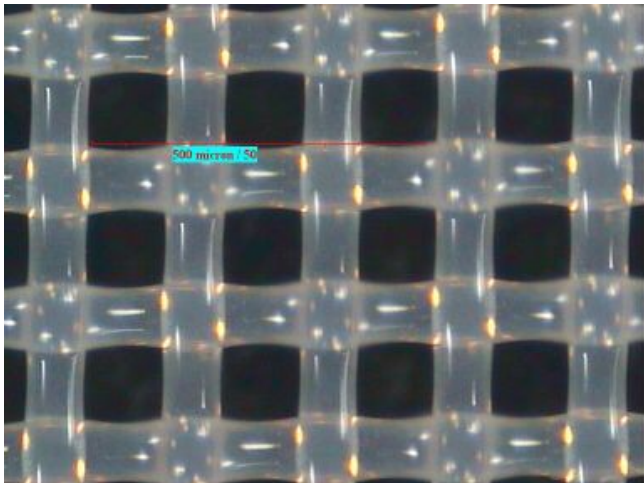


END USERS	ODMs Parts manufacturer	DIE CUTTERS
         	              	        

END USERS	LOUDSPEAKERS	NEW APPLICATIONS 2011-2013
     	    	   

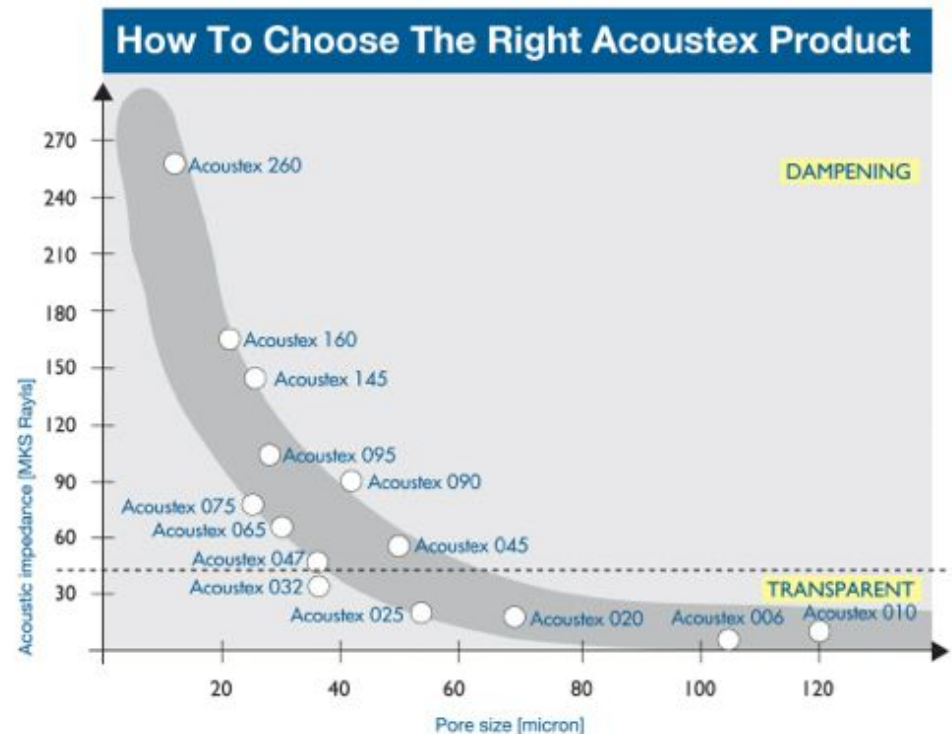
Reason 1: Dust and water protection

- Protecting against water is easy and doesn't require particularly tight meshes, but protecting against metal dust is harder.
- The loudspeaker has a magnet that attracts such dust. Gradual buildup of metal dust on the loudspeaker diaphragm, especially when combined with moisture, causes increasing distortion and/or attenuation of sound.



Reason 2: Acoustic damping of resonances

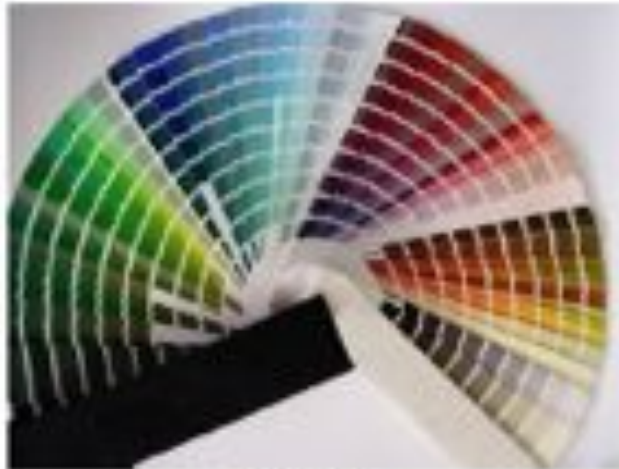
- While often the utmost loudness is wanted, it's also good to compromise and somewhat attenuate the acoustic resonances produced by the mechanics, without too much effect on the loudness.
- A suitable amount of acoustic damping, as is provided by typical meshes, smooths the frequency response and thereby increases sound quality.
- It also makes the frequency response much less sensitive to tolerances, and DSP equalization becomes easier.



SAATI WHY TO USE A SAATI ACOUSTEX PRODUCT ?

Reason 3: Industrial Design

- A mesh can hide some visually disturbing features beneath the phone covers.
- A mesh that covers visible features better is usually also tighter, meaning better protection against dust and water, but also higher acoustic damping.



Dyeing

ACOUSTEX MET® available range



DM
Dark Metal



IX
Inox



TI
Titanium

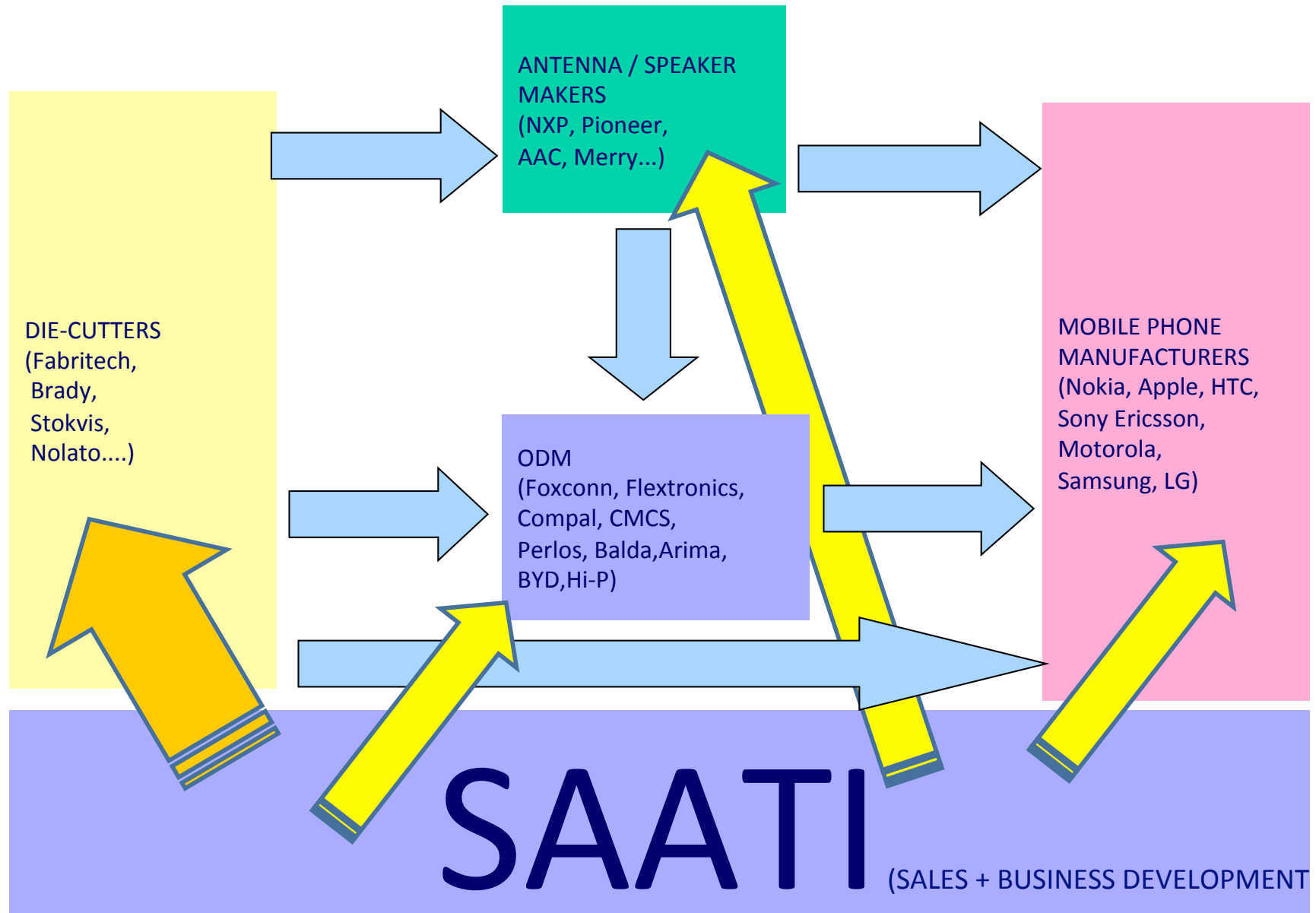


BR
Bronze



AL
Aluminium

—SAATI— TELECOM MARKET SUPPLY CHAIN



tot volume (kk pieces)	2010	2011	2012	2015-2016
Mobile Phones	1390	1570	1723	2190
Smartphone	150	490	643	1100
Feature phone	1240	1080	1080	1090
Tablets	23	62	119	370
Apple	15	40	70	170
Others	8	22	49	200
Notebooks	340	352	349	380
Ultra Slim	0	4	12	150
Others	340	346	348	230

Source: Gartner, IHS, IDC



Business Case 2: Touch

SAATI TOUCH PANEL MARKET VOLUMES



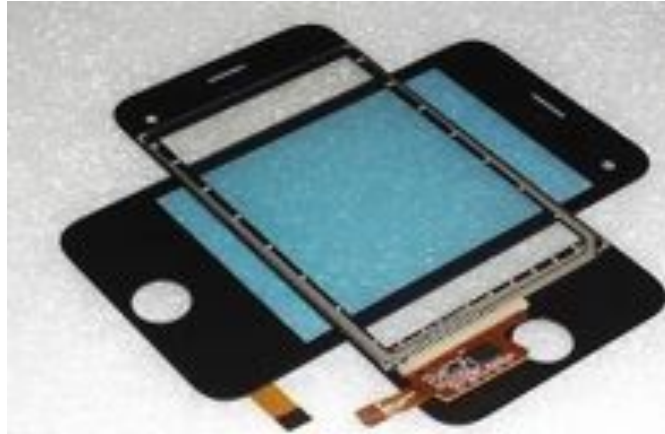
Source: Display Marketplace



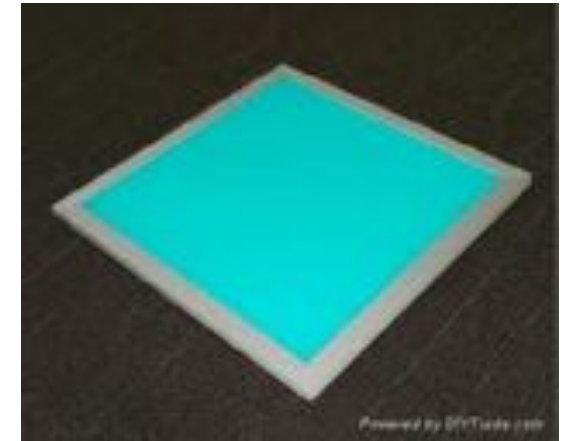
—SAATI— THE TOUCH PANEL MARKET SEGMENTS



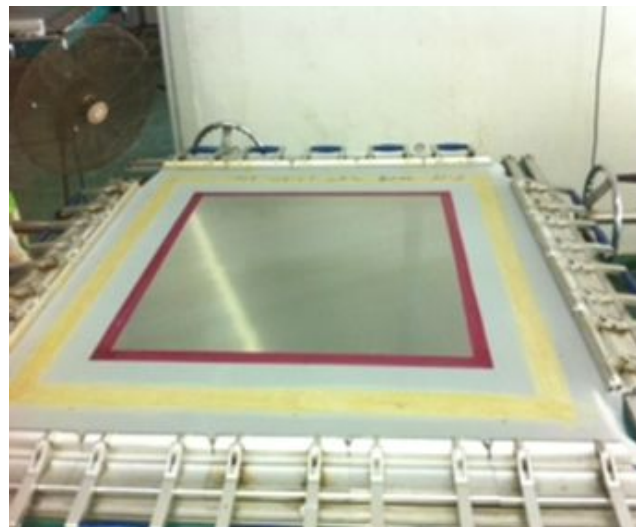
Cover Glass



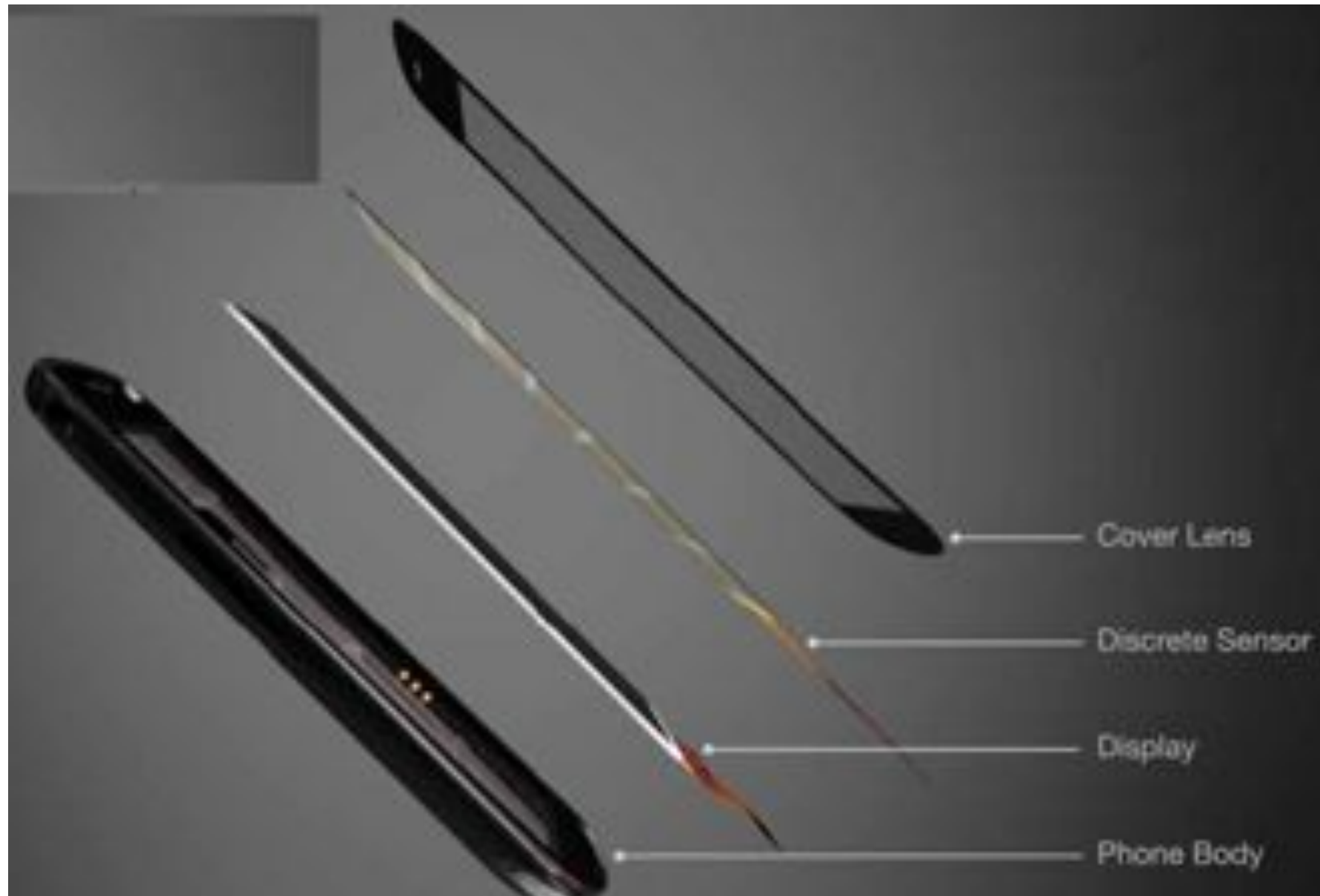
Touch Sensor

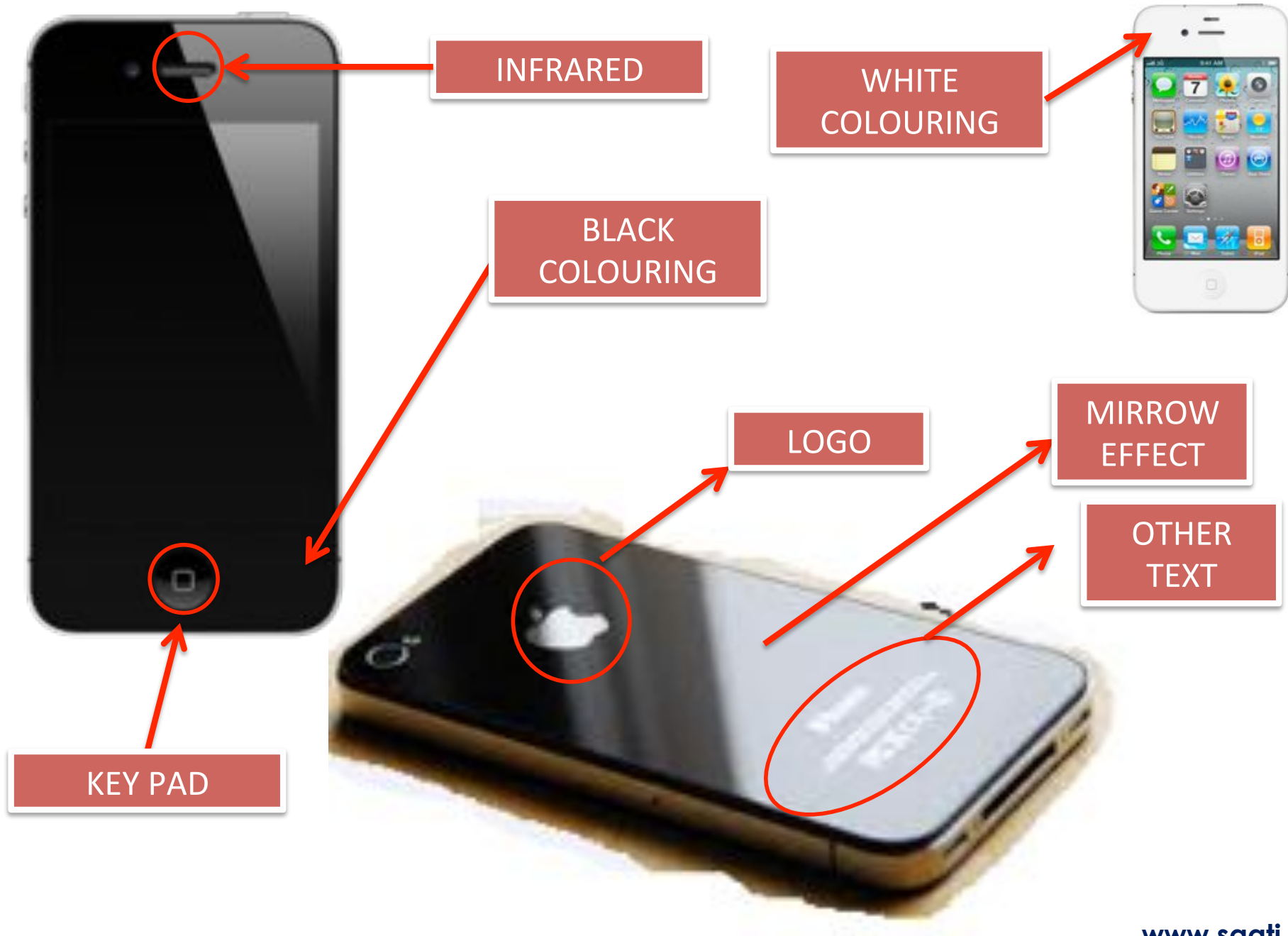


LGP



SAATI PRO CAP TOUCH PANEL STRUCTURE

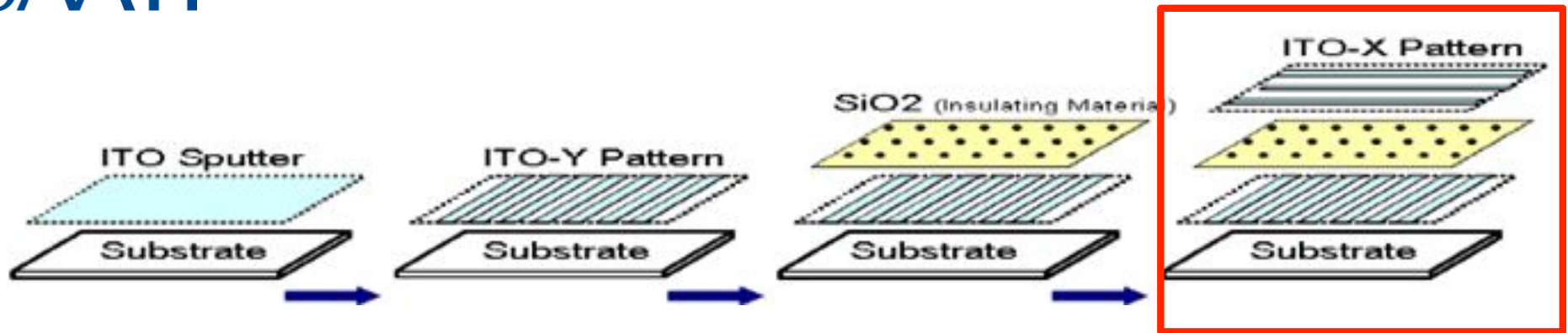






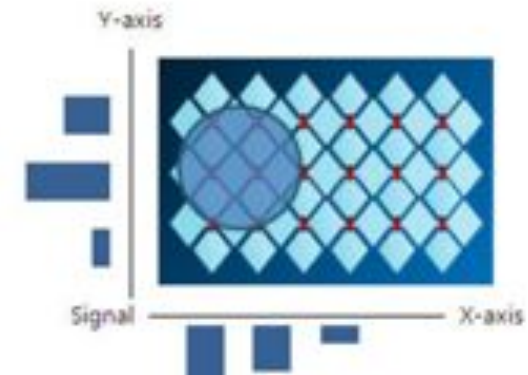
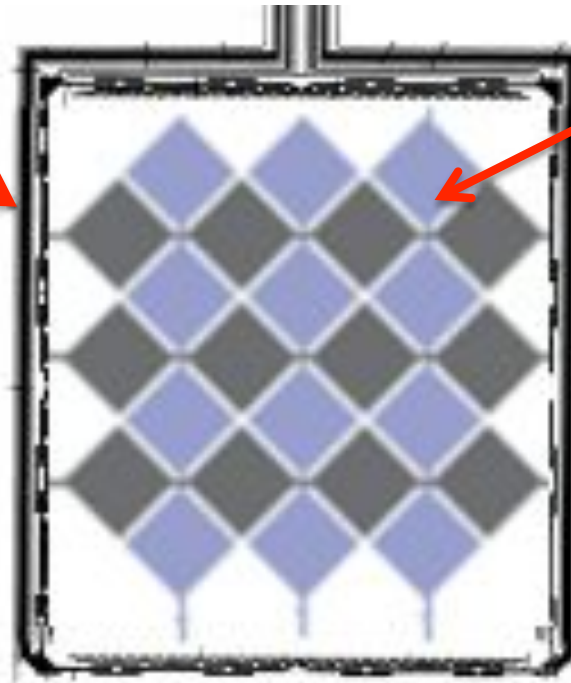
Screen Printing is the main technology used for the TP's Cover Glass decoration thank to the higher Performance/ Price Ratio versus Stainless Steel mesh.

Saati product range, either mesh or chemicals, is largely used in this market segment.

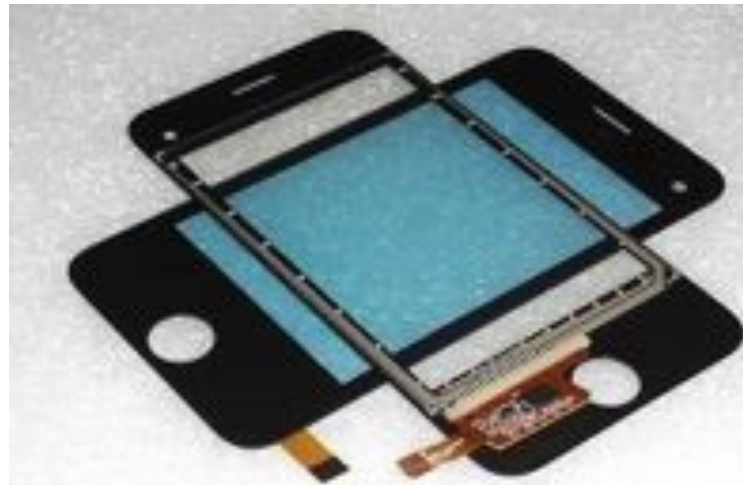


EXTERNAL
CONDUCTIVE
LINES

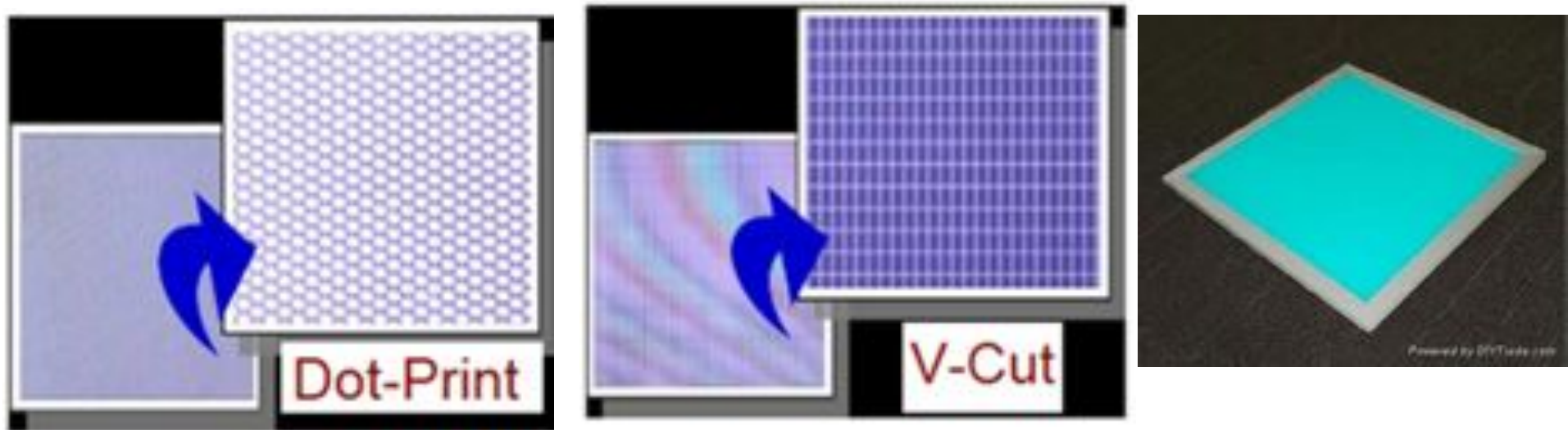
INTERNAL
CONDUCTIVE
PATTERN



- Printing of the internal Conductive Pattern (Layer X and Layer Y).
- Printing of the external Conductive Lines (Layer X and Layer Y).
- Printing of insulating ink, in order to separate/protect the 2 conductive patterns (layer X and layer Y).
- Printing of Alkali or Acid resisting Inks
- Printing of protective glue



LGP is a transparent acrylic panel made from pure PMMA resin, on whose bottom face a dot matrix is printed or a line matrix is scratched. The light source is installed on its edge(s). It distributes the light coming from the light source evenly over the whole upper face of the acrylic panel.



- High Screen Tension Mesh for Better Quality and less ink consumption
- Plasma treatment for improving resolution and printing quality, increasing stencil working time
- Emulsion specifically designed for this industry – One Stop Shop

- Hi-lo 165.27
- Hi-lo 140.31
- Hi-R 140.31
- Hi-lo 120.34

COVER GLASS



TOUCH SENSOR



LIGHT GUIDE PANEL



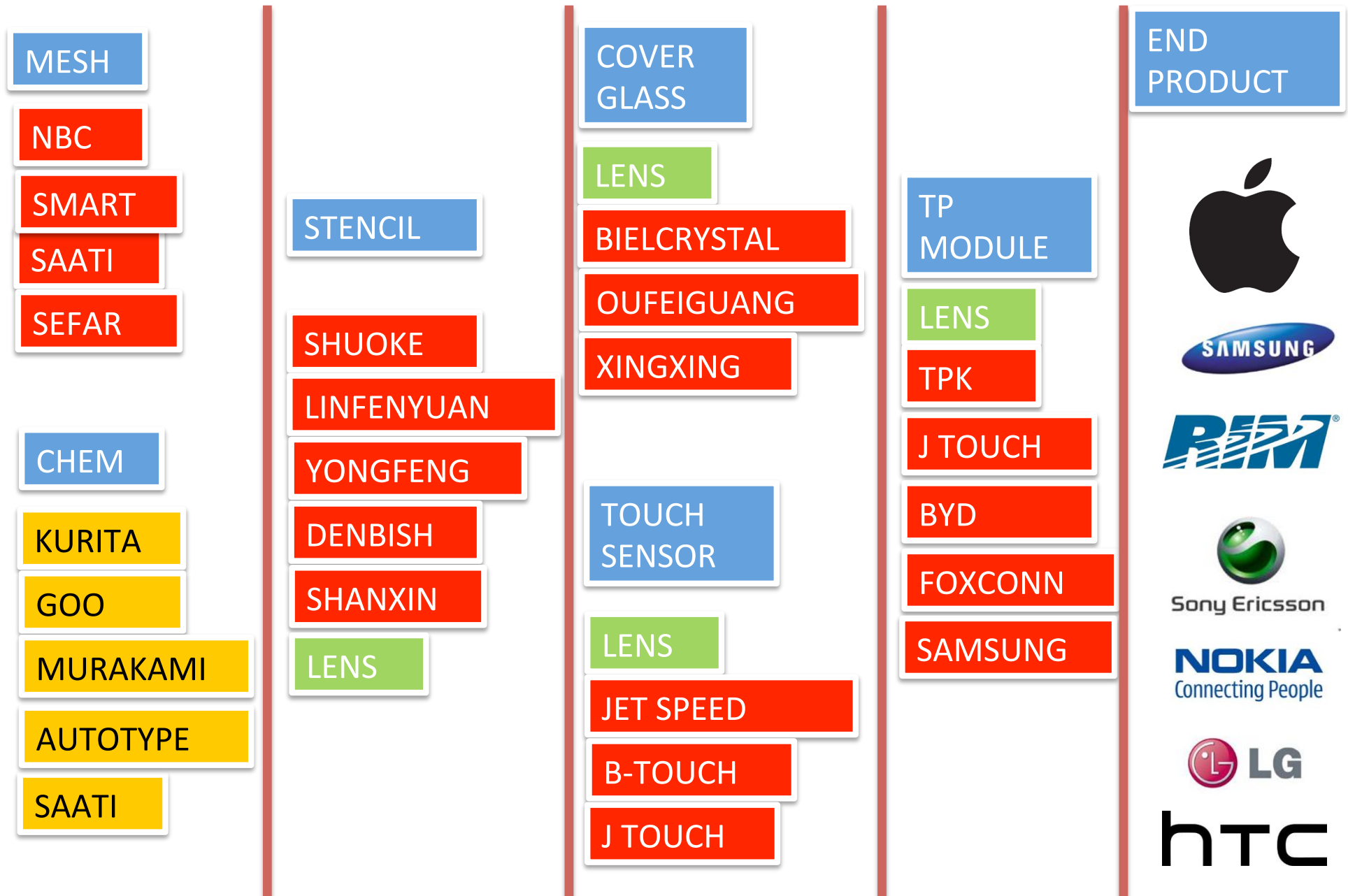
PHONE BODY

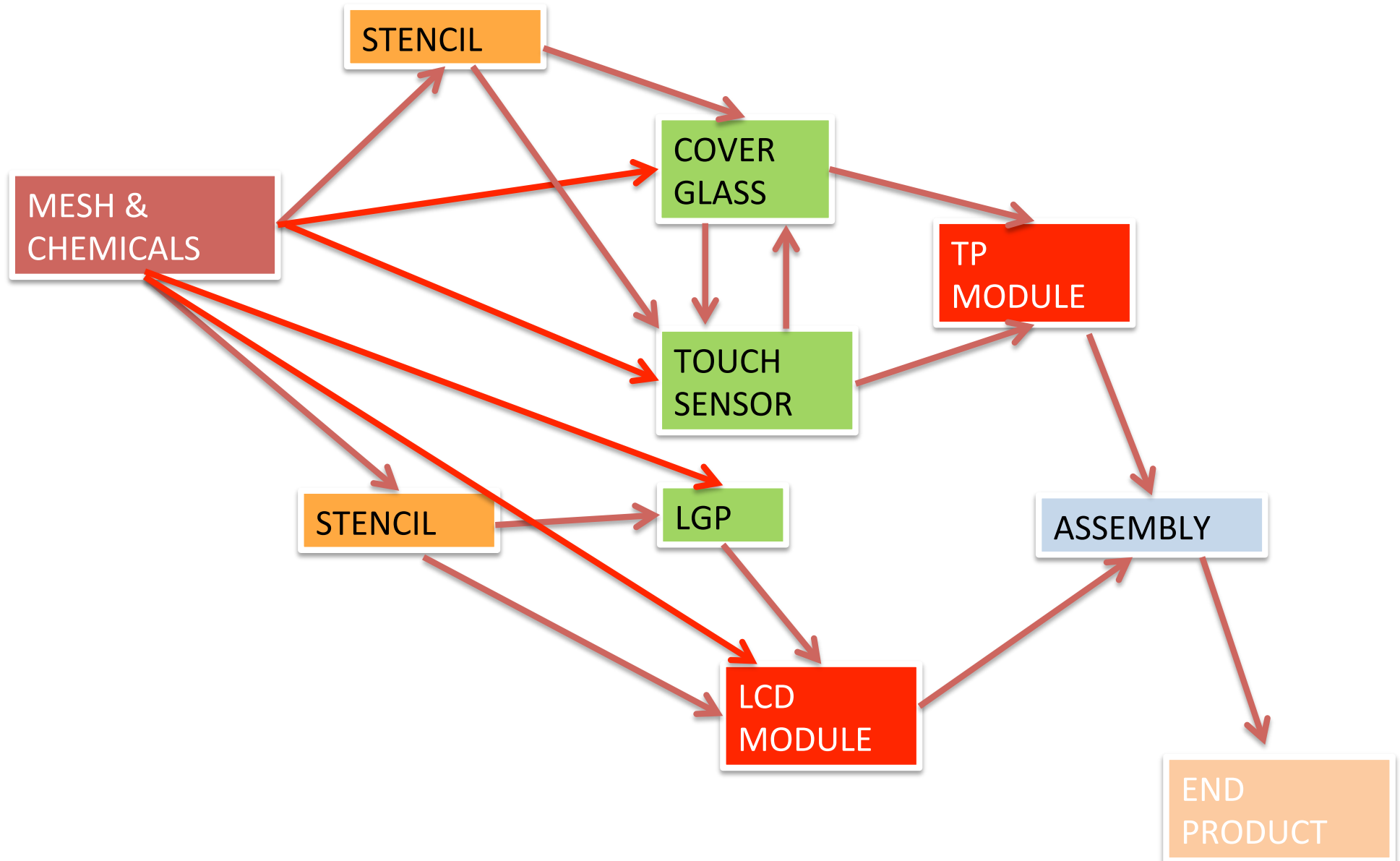


- Hi-lo 165.27
- Hi-lo 140.31

- Hi-lo 165.27
- Hi-lo 140.31
- Hi-lo 120.34

SAATI TOUCH PANEL SUPPLY CHAIN





Grazie per l'attenzione

Paolo Canonico

pcanonical@saati.com