Coatings Trends & Technologies SUMMIT

New surface appearance measurements to match consumer perception
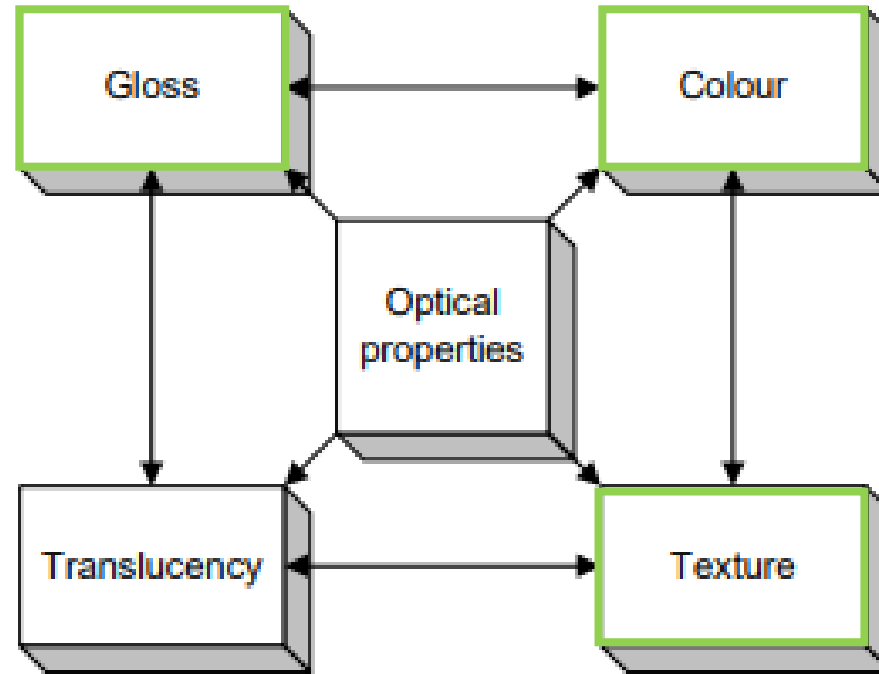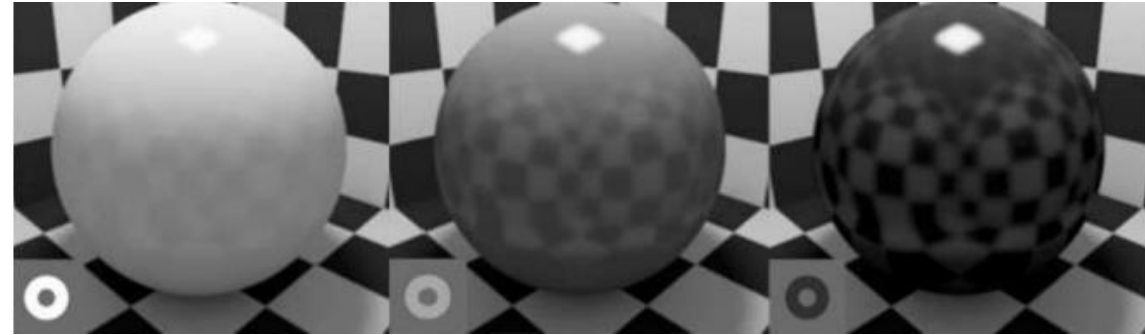
CIE- A Framework for the Measurement of visual appearance

Multiple aspects of a surface appearance influence the consumer perception of quality and greatly influence purchasing choice
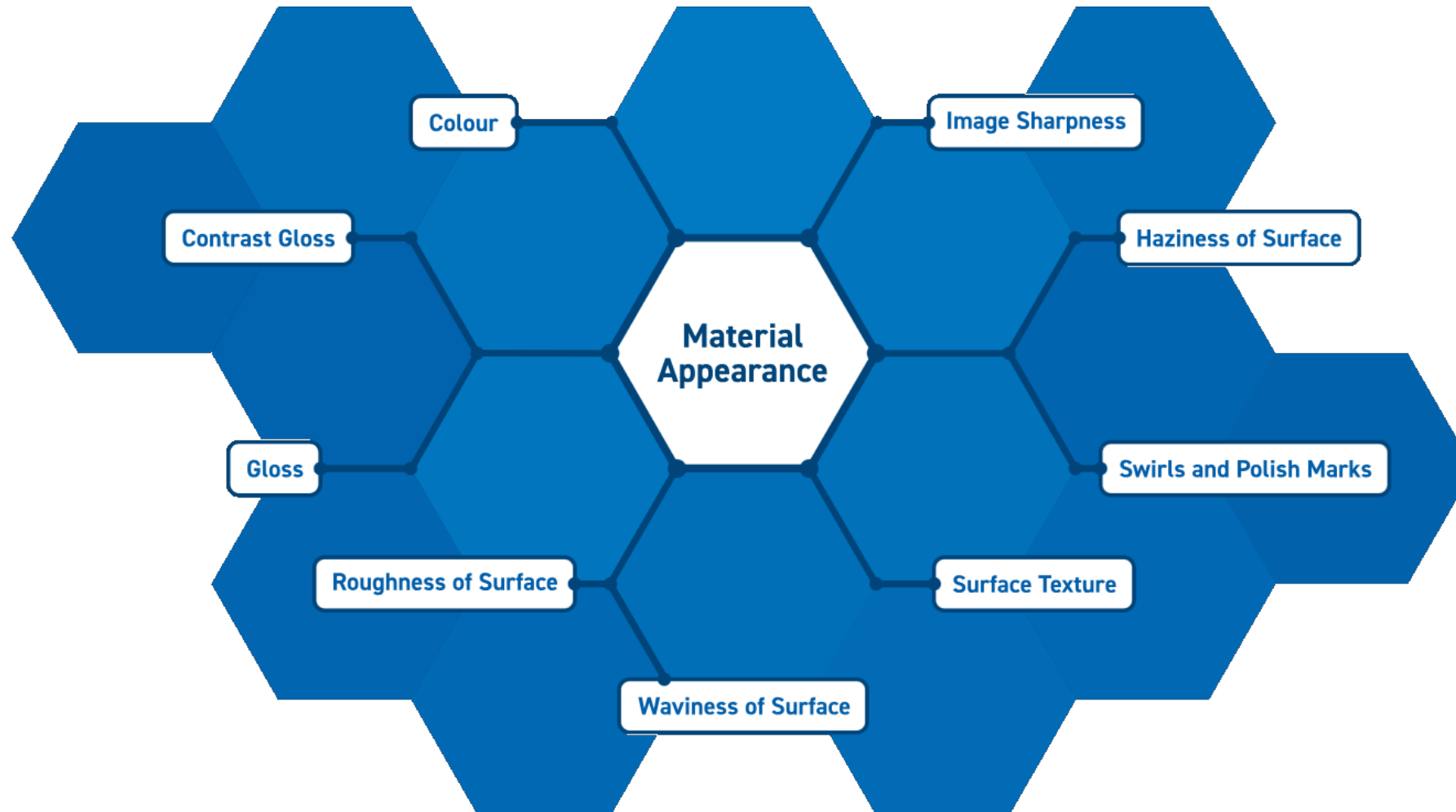
(Ferwarda, Pellacini and Greenberg, 2001)

EQUAL readings but DIFFERENT perception…….

Traditional meters capture limited information about a surface and do not always correlate with what we see

Measurement Possibilities

Flexible light sources and dual cameras- an Instrument Vision System that quantifies multiple aspects of surface appearance
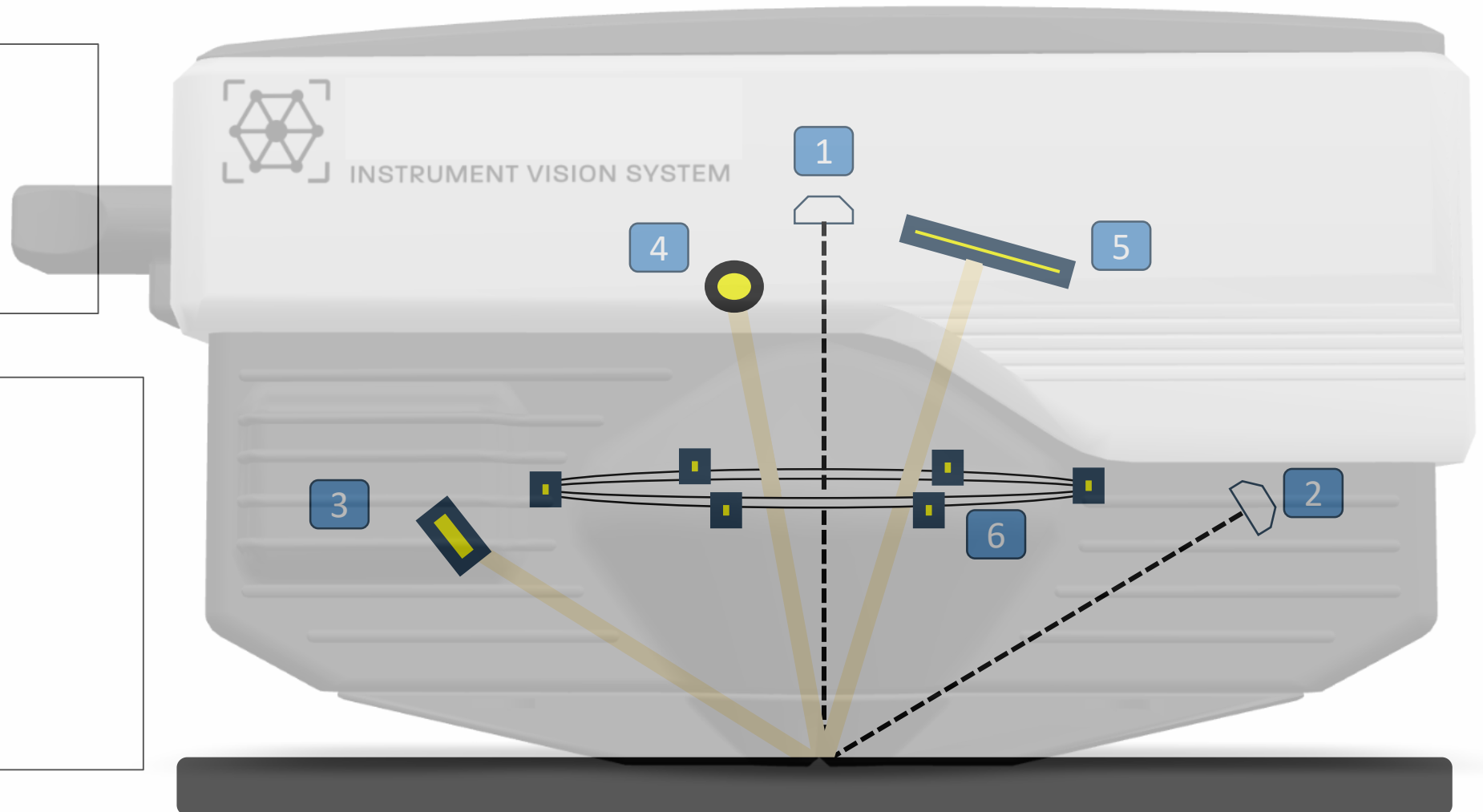
Novel Technology Overview

Key

1. 0° Observer Camera
2. 60° Gloss Camera
3. 60° Gloss light Source
4. 10° Spot source
5. 15° Linear source
6. 45° Ring sources (x6)

Imaging Specifications

- Raw surface image: 25x19 mm

- Processed image size
  Sparkle: 10x10 mm
  Gloss: 12x12 mm
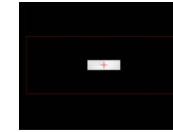 Topo: 15x15 mm

- Surface Resolution: 10 µm/pixel

The sensor can be used with a laboratory PC, a tablet for mobile inspection or as part of an inline or cobot measurement cell
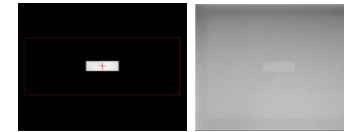
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Glossiness c.

Standard Gloss
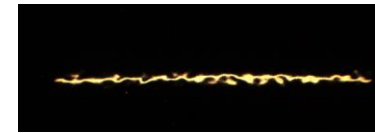Traditional gloss for backwards compatibility
- Fully compliant with ISO/ASTM standard

Visual Gloss
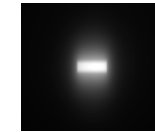Consumer perceived gloss- "contrast gloss"
- Useful for designers

Waviness/Orange peel
Perception based measurement of orange peel
- High impact on perceived quality

Sharpness & DOI
Key to appearance of high gloss coatings
- Highly sensitive to micro texture

Haze, Scratches and Holograms
Quantify effect of polishing, ageing and damage

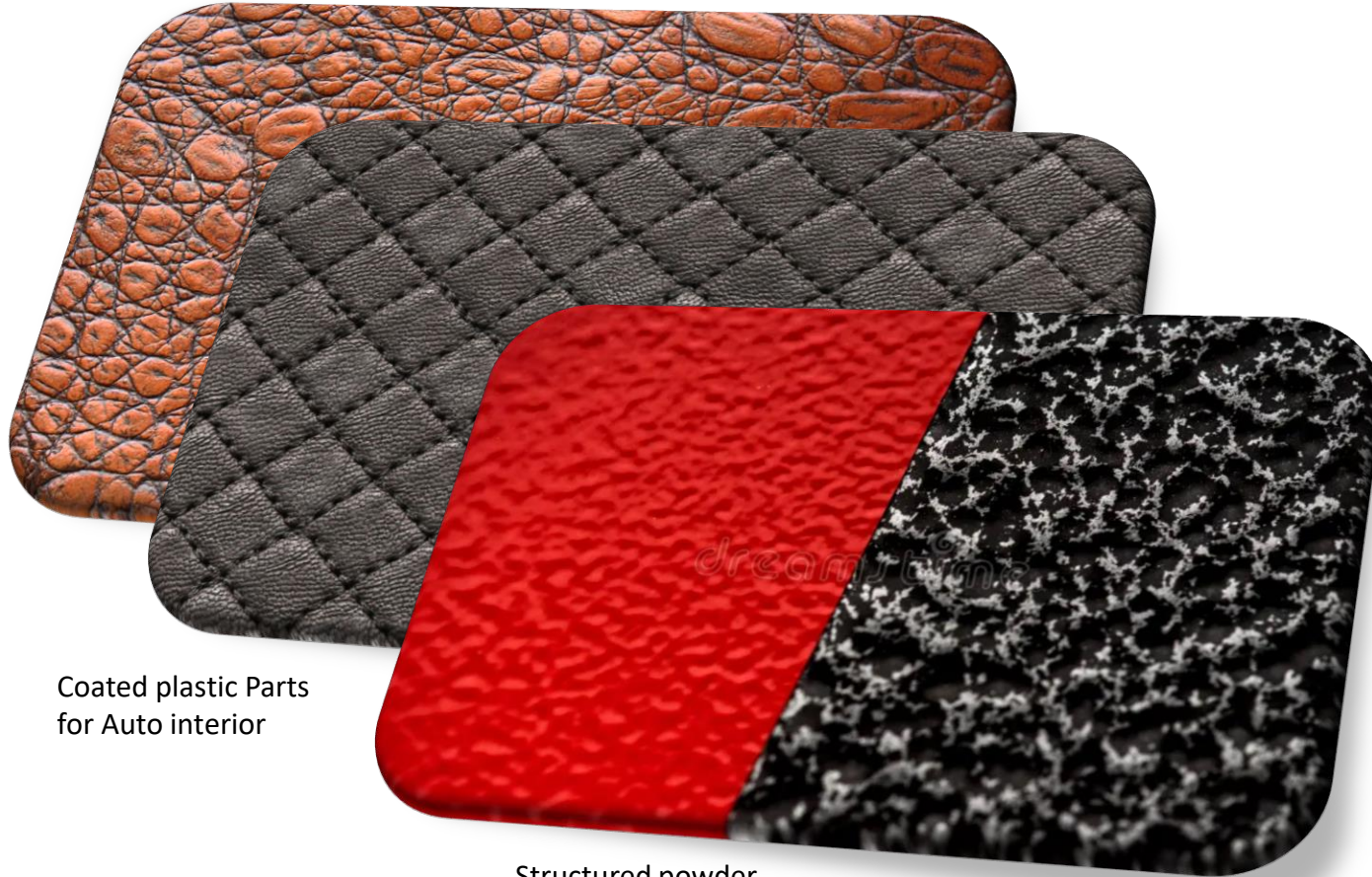### RGB Colour
Colour correct RCB surface image
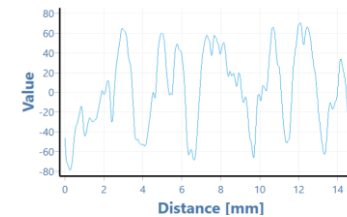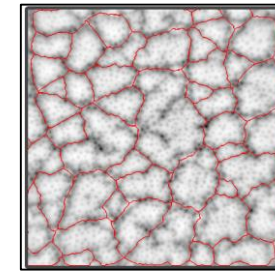- Good for spatial colour analysis

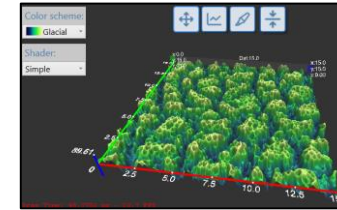Coatings Trends & Technologies SUMMIT

Dyed and Coated Natural Materials

Coated plastic Parts for Auto interior

Structured powder coatings

Cell Size & Amplitude

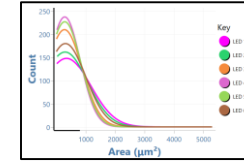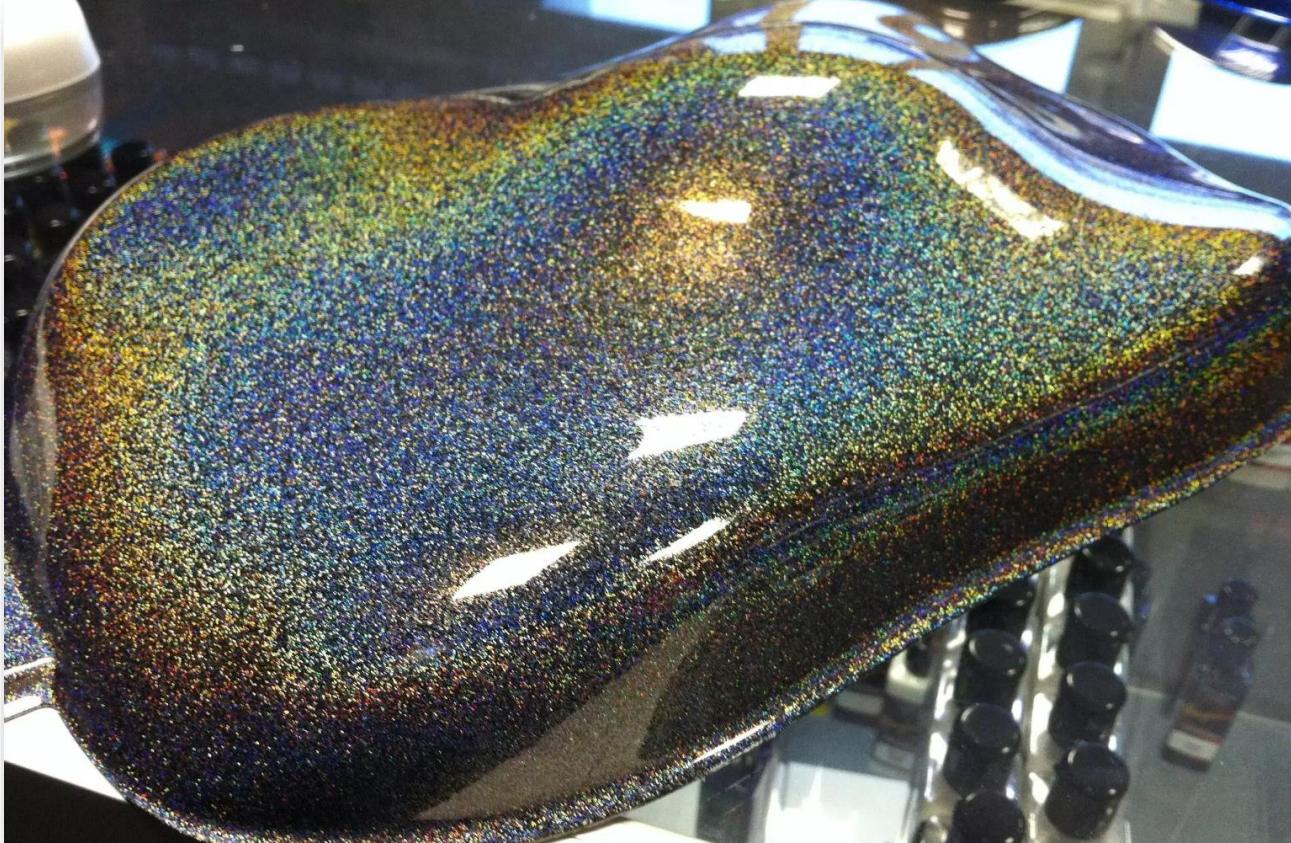Size and distribution of identified features

Reflectivity of hills and valleys

Perception of the surface is influenced by glossiness differences
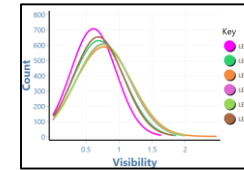
Optical Roughness

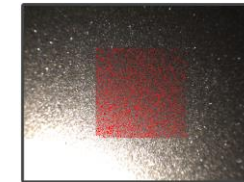Important factor for tactile "feel"

Sparkle Measurement

Sparkle Size
Average size of visible elements

Sparkle Intensity
Brightness of sparkle elements

Sparkle Density
Count of visible sparkle elements/area

Sparkle Colour
RGB colour of sparkle elements

	SpR	SpG	SpB
	181	171	145
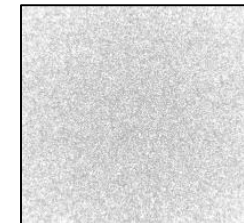
Graininess
Coarseness of surface in diffuse conditions

Technology Deployment

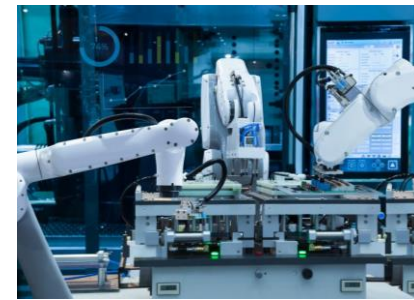## Parts and Surfaces

 Small parts

 Wet or Delicate Materials

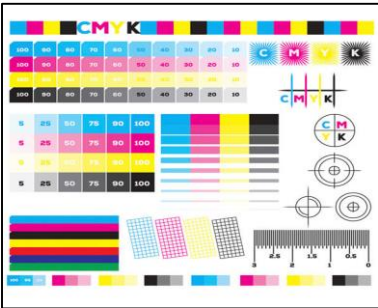 Curved surfaces

Places

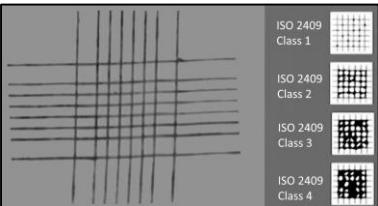 Laboratory

 Production Line

 Inspection

Upcoming Modules

Transmission Appearance

Inks and printing

Coating test modules

AI Integration

Measurement Data

Process Data

Customer Ranking

Applied AI Methods
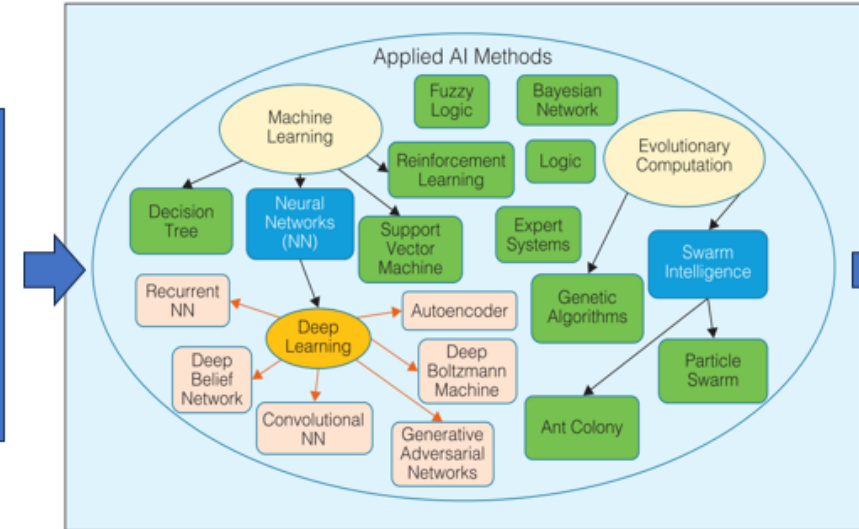
Improved Quality

Optimised Process

Waste Reduction

Control for your needs

Simple to use tools –
For the age of complexity

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