Coloro Application ITMF Awards 2022 International Collaboration

Content:

- 1 Page Executive Summary
- 1 Page Coloro Executive and R&D Team
- 2 Pages Exceptional Achievements
- 1 Page Coloro Patents
- Appendix as PDF for further information:
- 14 pages

Project:

Creating a Universal Color Standard and Global End-to-End Workflow - Including:

- Coloro ID System of Human Color Vision
- Physical Solutions
- Digital Solutions
- Big Data
- Creative Color AI
- Technical Color Al

Target:

Creating a unifying system and end-to-end workflow to eliminate wrong color decisions and wrong color application:

- one system, all disciplines
- one standard, all applications
- one database, less emissions, waste, and cost

Page One: Executive Summary

1. Approach: Addressing Fashion's Biggest, and Most Underestimated Challenge and Gap

With conducting the first global research on the use and application of color in partnership with trend leader WGSN in 2016 at 80 of their biggest global clients, color was identified as a core gap and challenge over the complete value chain of fashion:

- 1. Color is the starting point of every new collection and product and directly links into sales, but its core role on commercial success is not reflected in adequate research, resources, and equipment with missing internal knowledge, education and training.
- Although it is common knowledge that color is representing up to 90% of consumer assessment at purchasing decisions, color budgets at fashion brands and retailors represented in average just between 0.01 and 0.02% of their revenue; at many companies dedicated color budgets were even not existing.
- A vast majority of brands, retailors, designers, and sourcing departments had low color knowledge and/or a lack of
 educated/skilled teams and specialists on color; color decisions were often made by relying on the feelings and experience of
 creative teams, without conducting detailed research and analysis.
- 2. The fact that wrong color decisions are a major potential reason and driver behind unsold products and overstock, and the superordinate role of color application on sustainability (wet processes) as a major driver of emissions with directly creating billions of cubic meters of polluted wastewater each year, was barely realized and almost completely unaddressed.
- 3. Basically, all participants identified the lack and nonexistence of a global color standard and unifying system with full data to build an end-to-end solution and digital workflow with reliable and globally available physical color standards as the key challenge and gap in their work and the reason for above challenges.

We decided to finally close that gap, and developed a unifying system and solution, providing a global standard and specification, with full and interdisciplinary solutions and digital applications with big data.

- 2. Methodology: 7 Steps to create a unifying end-to-end system and application of color
- Step 1: Building a color ID system which mirrors the visual and psychological impact of color: scientific but intuitive, simple to use but with accurate technical specification. The system of human color perception and psychology.
- Step 2: Building full applications to use that same **ID system and data in the creative workflow**, supporting new and future technologies from PLM software to 3D to new AI solutions.
- Step 3: Building full applications and data for that ID system to implement creative color decisions in the global supply chain
 not as a proprietary solution of an individual dyestuff company, but as an open platform, including global and local dyestuff companies, yarn/thread/fabric companies, dyeing mills, printers, and garment makers.
- Step 4: By providing the individual ID of each color, the system is enabling and including **logistics and distribution** to use technologies like RFID and blockchain to manage stock, distribution, and in-season production/restocking.
- Step 5: A logic and accurate ID system will finally enable **retail and E-Commerce** to exactly define each color and shade internally and externally, and create real/time, short-term, and long-term sales analytics and demand forecast.
- Step 6: A core requirement will be implementation of technology and solutions to enable real-time **social media analytics** as the new key driver of trends and lifestyle.
- Step 7: Creating and providing a unique base of "Big Data" over multiple substrates, processes and technical requirements to increase First-Time-Right Rates and minimize waste, emissions, and pollution.

3. Objectives: Creating an End-to-End System and Solution over the full color value chain

- Building the **ID system** of human color vision and color psychology by. Hue, lightness, and chroma (with 1.6 mio color codes).
- Material-, application-, and technology-**independent**.
- Developing and coding (over 200,000) **physical color standards** and providing over 4,300 consistent and reliable color
- standards dyed in bulk, as real-time and globally available stock from regional warehouses in Asia, Europe, and America.
 With physical design tools and physical color standards for supply chain, plus QTX and both creative and technical data.
- Building Big Data with over 1.5 mio color data for application in supply chain for multiple substrates, multiple light sources, multiple testing standards (ISO/AATCC/GB), and multiple dyestuff suppliers.
- Developing **Color AI** to identify and specify colors from digital images to analyse social media and catwalks and (digital) creative color intelligence to analyse trend palettes, competition, brand positioning, sales and color combinations.
- Developing (digital) **feasibility color intelligence** to analyse color achievability and application in supply chain for multiple substrates and requirements before going into production and creating unnecessary waste, cost, and pollution.
- Building an **end-to-end digital workflow** including integrations into all existing and future applications and technologies from PLM to 3D design to dyestuff databases and ERP systems.

4. Results/Achievements:

- 1. Finally **closing the loop** between consumer and brand, brand and supply chain, logistics and distribution, creation and technical, through finally providing a connecting and universal standard and ID system and database Coloro Color System with 1.6 mio codes of hue, lightness, and chroma.
- 2. Eliminating wrong creative color decisions which do not meet demand Coloro Creative Color Intelligence.
- 3. Eliminating wrong technical color decisions which create unachievable colors and resulting waste, time, pollution, and cost Coloro Feasibility Color Intelligence.
- 4. Eliminating failed colors in supply chain Coloro Color Standards paired with Big Color Data.
- 5. Doubling right-first-time rates and reducing waste, time, pollution, cost clients achieve an 80 to 90% Righ-First-Time Rate.
- 6. Creating reliability, transparency, and confidence through the full color value chain and minimizing pollution and emissions.
- 7. After 4 years of business **over 300 brands and over 3,000 suppliers are using Coloro globally** in fashion and textiles, with thousands of users at brands and in supply chain.

Page Two: Coloro Executive and R&D Team

HU SONG

Chief Executive Officer

Deputy Director of China Textile Information Center CTIC, Executive Director of China Applied Color Research Project, Textile and Garment Color Application Tool Research and Development, Textile Color Matching Technology and Application Tool Development, Textile Color Measurement and Supply Chain Color Integrated Application Technology Development, Textile and Garment Supply Chain Color Laboratory Construction and many other national and industrial key scientific research projects. Participated in key projects such as Fabrics China and Shanghai Industrial Research and Development Base. Collaboration and development projects with domestic and foreign enterprises.

DETLEV PROSS

Chief Strategy Officer

Strategy and Global Implementation

Over 30 years in the color and creative industry, serving in several consulting and executive roles in printing, textiles, interior, paint, trends and digital, working with global companies, partners and clients like Pantone, NCS, RAL, CTIC, and global leaders in the chemical industry like Akzo, DuPont, BASF, Sun Chemical, Longshen etc. Involved in digital color management since its pioneer days in 1988. Founder and President of the first international association to drive application and use of digital color management in the printing industry in 1995, with members like Apple, Adobe, Xrite, HP, Xerox, Agfa, Kodak, Heidelberg, Sun Chemical, DuPont, Fogra, Getty Images etc.

ZHANG WEI

Chief Content Officer

Content, Trends, and Consulting

Over 25 years in color, fashion, lifestyle and consumer insights, serving as Director of the Research Dept. of China Fashion Color Association, Chief Representative of China for Inter Color Committee, Director of the Trend Center of China Textile Information Center, Editor-In-Chief of trend authority magazine View International Fashion and Fabrics, etc. Was one of the earliest experts to conduct systematic research on fashion trend in China, working closely with domestic lifestyle brands like JD.com, Tmall, Huawei, Vivo, Midea, Bosideng, Anta etc., providing them with professional insight and creative solutions.

MI XI

VP Production / R&D / Logistics

Production, Logistics, R&D

Director of CTIC and VP of Coloro, joined the Coloro project after graduation from DongHua University in 2006, member of national color research projects, leading R&D, production, and logistics. Published thesis on: Function of methyl methacrylate to polyester dyeing under atmosphere pressure and its mechanism; Analysis of the effect of humidity on Fabric Color; The correlation discussion on color difference rated by eye and measured by instrument; The influence of UV condition setting on instrument measured fluorescent color stability.

ZHANG HUISHAN

Chief Engineer

Scientific and Technical Lead

Working for over 16 years in color devopment and color research and standardization projects. Member of the Committee for China Color Standardization, developing standards as FZ/T 01099-2008, GB/T 21898-2008, and FZ/T 01099-2021. Leading the scientific research and development of the Chinese National Color System CNCS till 2015 and resulting development of the Coloro Color System from the base of CNCS, starting in 2016.

Publications: Zhang Huishan / Fu Jiong - "Applied Colorology", Shanghai People's Fine Arts Publishing House, 2020

Company Information: Coloro Co., Ltd., Shanghai Building 4, 300 Dingyuan Road / District Songjiang, Shanghai 201616 - PRC

Page 3: Coloro Exceptional Achievements

Finally creating a unifying and certified Color Standard for the Textile Industry:

GB/T 21898-2008 - Method of specification for textile colors FZ/T 01099-2008 and 01099-2021 - The Color System of Textiles



Open Dyestuff Database: Open to all dyestuff companies.

Currently joined by key dyestuff manufacturers globally and locally, like Lonsen Group, Huntsman, Argus (China), Setas (Turkey) and others.

Open Integration into Creative Applications and PLM Systems:

Currently integrated in Lectra, Datacolor Reader, Swatchbook, Browzwear, WGSN, Peclers, Promostyl and others. Free and easy integration into client's specific applications.



Enabling Color Leadership to Brands:





Page 4: Coloro Exceptional Achievements

Significantly increasing efficiency of color communication, specification, and application. Reducing time and cost, and minimizing waste, emissions, and pollution:



Case Study C&A:

89% "First-Time-Right" on Nylon 90% "First-Time-Right" on Polyester 92% "First-Time-Right" on Cotton **Case Study European Sportswear Brand:** 65% "First-Time-Right" in first season 80 to 95% "First-Time-Right" in second season

Providing unique data and support: Case Study European Retailor



Connecting Global Brands with Global Supply Chains – Excerpts of Coloro Users:



coloro

Patent/专利	Title/名称	Territory/区域	App. No./申请号
发明Invention	Sample holder	UK	GB1708243.9
发明Invention	Sample holder	EPO	EP18168507.4
发明Invention	Sample holder	USA	US 15/986,894
发明Invention	一种在平面上排列颜色的方法/A method of arranging colors on a plane	CHINA	202110387473.1
发明Invention	一种色彩搭配的方法和装置/A method and device for color matching	CHINA	202110759140.7
实用新型utility model	Color sample page \ holder and combined color book/色卡插页、色卡文件夹以及所构成的色卡册	CHINA	201820359499.9
实用新型utility model	Color inserted card \ holder and combined folder/色卡插片、色卡底板以及所构成的 色卡夹	CHINA	201820359552.5
实用新型utility model	色彩演示教具/Color demonstration teaching aids	CHINA	202023114393.9
外观Design	Color book/色卡册	CHINA	201830098390.X
外观Design	Color book/色卡册	CHINA	201830098504.0
外观Design	Color box/色卡册	CHINA	201830098348.8
外观Design	Folder/色卡夹	CHINA	201830098205.7
外观Design	Holder/色卡底板	CHINA	201830098253.6
外观Design	Holder/文件夹	CHINA	201830098288.X
外观Design	Holder/文件夹	CHINA	201830098493.6
外观Design	Sample holders	CHINA	004014975-0001
外观Design	Sample holders	EU (RCD)	004014975-0002
外观Design	Sample holders	EU (RCD)	004014975-0003
外观Design	Sample holders	EU (RCD)	004014975-0004
外观Design	Sample holders	EU (RCD)	004014975-0005
外观Design	Sample holders	EU (RCD)	004014975-0006
外观Design	Sample holders	EU (RCD)	004014975-0007
外观Design	色彩明度练习卡/Color lightness exercise card	CHINA	202030799402.9
外观Design	色相环练习卡/Hue ring exercise card	CHINA	202030799403.3
外观Design	双色相色彩练习卡/Bichromatic color exercise card	CHINA	202030800189.9
外观Design	色卡桌立(COLORO)	CHINA	202030798246.4
外观Design	等色相色彩练习卡/Isochromatic color exercise card	CHINA	202030797402.5
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版权Copyright	COLORO Polyswatch	CHINA	国作登字-2017-L-00410290
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版权Copyright	元彩COLORO图片选色软件V1.0/COLORO image color pick up softwareV1.0	CHINA	2020SR0159257
版权Copyright	元彩Coloro色序系统色卡三维展示软件V1.0/COLORO color system 3D demonstration softwareV1.0	CHINA	20205R0160864

Page 5: Coloro Patents

Please see separate PDF for detailed information and background on Coloro.