

# Colour Physics Software delivered as a Web service – the way forward.

Putting a complete suite of Colour Physics software - from colour QC through to recipe prediction - on a Web server for use by anyone with an internet connection, as eWarna has done, is not only cost effective but opens the way to major benefits for all stages of the textile colour supply chain.

By Dr John Xin of Hong Kong Poly University and Richard Lawn of eWarna

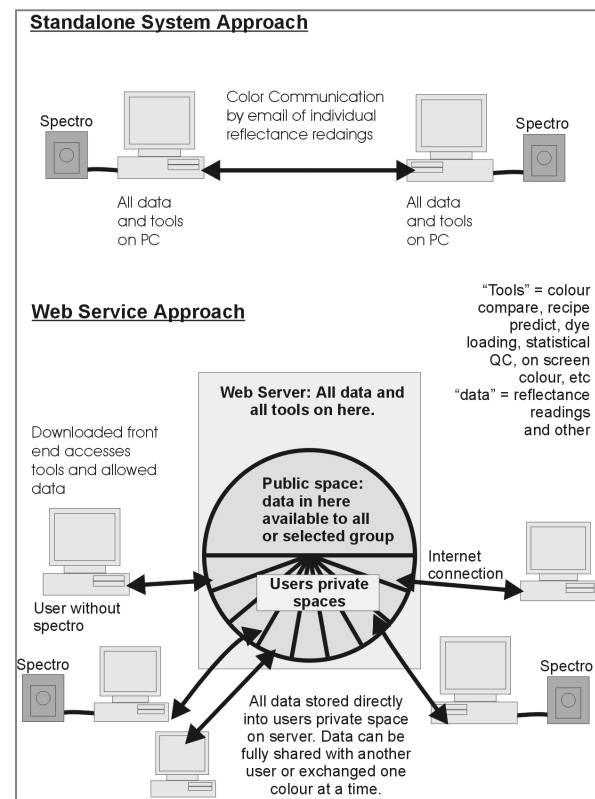
Despite the recent decline in dotcom fortunes, almost everyone (even Sun Microsystems and Microsoft) agree that in future more and more software that is now used in a “standalone” manner will be delivered as a Web based service, with the functionality and data residing on a server which the user works with via a downloaded “front end” or “thin client”.

This switch is generally felt to apply to commercial applications relating to finance, ERP, customer management, etc. But in fact Colour Physics (CP) software, as used now in various standalone versions by most leading dyehouses and many apparel manufacturers and retailers, is an almost ideal candidate for this approach:

- the standalone software is generally expensive, particularly if the full suite of recipe prediction, colour on screen and statistical QC is purchased and upgrades may be required when operating systems (eg Windows) change
- colour data is **meant** to be shared: accounting software as a Web service has low cost as it's main advantage because one user does **not** want any other user to see his data, but the usual reason for measuring the reflectance curve of a piece of coloured textile is to compare it with another reading made by another user elsewhere in the world. This explains the huge growth of interest in colour communication via “point to point” transfer of individual readings.

- further, dyestuff data (calibration dyeings, fastness ratings, cost, process and auxiliary types) which is the other type of data stored in CP systems is also a prime candidate for sharing. Individual dyehouses need to keep their data private of course, but many dye suppliers are very keen to be able to input such data once and have it instantly available “inside” the recipe prediction systems of many customers worldwide.
- the actual functionality of CP software progresses rapidly over time. It is much easier to add a new colour difference algorithm, or hardware driver, to one central server application than it is to install it in numerous standalone systems spread around the globe.

eWarna has followed this logic through and built just such a Web based service, now in commercial use by several companies across Asia. Figure 1 highlights the differences between the current approach and Web service architecture. Currently, a reflectance curve measured by a spectrophotometer is stored on the PC attached to it, and all the functionality of the software resides on that PC. If any communication of colour is required, this is usually achieved by e-mail, one reading at a time. There have been some recent moves towards sharing and comparing colours in simple terms on a Web site but it



seems unlikely that any merchandiser or dyer would think any such Web site is the **only** application they need to handle their colour management operations.

In contrast the eWarna application is complete – online users can treat it as their one and only standalone application until the time comes to realise the benefits of it's centralised server location. All that sits on the user's PC is a downloadable front end, which can control a range of common spectrophotometers. When a reading is made, the data is stored directly into the user's “space” on the eWarna server. All the functionality of the

software sits on the server – the user end is just a “window” (written in Java, to run on any PC operating system) that lets the user see the reflectance curves, colour on screen, 3D graphics, recipe printouts, dye loading curves, etc that he needs.

The data always remains on the server, which means “sending” it to another user actually involves no movement of data at all, just a change of access rules. It also means that a user can download the front end on as many PCs as he wishes and manage his colours from anywhere with internet access – eWarna charges a few hundred US\$ per year per user password, not per location. The price level is intended to show benefits if the user replaces at least one courier package per month with an “electronic swatch”. Data can also be read into the “public” space of the server (dye loadings, shade card shades) can be made instantly available to all or a selected group of users.

Clearly, this makes communication of colour down the textile supply chain almost trivial. A network of 10 companies, for example, can be set up in minutes by them all downloading the front end and renting passwords (choosing to either share all colours under the same user or have their own “space” and send and receive colours to other private spaces). Only colour producers such as dyehouses need access to spectrophotometers as everyone else can work with the producer’s readings, if the producer chooses. Such hardware can even be shared – two users with different passwords can share a spectrophotometer without either party having access to the other’s data.

The “public” side has major advantages too. Any user can perform a “colour search” of an online shade card to which he has access to find the closest

match from that shade card to his own colour reading. And it opens up a completely new distribution channel for dye suppliers – they can share all relevant information about their dyes (even readings that show batch consistency or fastness effects) with all users or a selected group, instantly. The dyer can work with this data in the same way (for example predicting a recipe from it and checking the cost) that he works with the data he may have built up himself within the system, allowing him to make a fully informed decision about dyes he has never heard of, perhaps even from suppliers he does not know. eWarna is building a network of labs and offices to give offline support to such dyers, and takes a “cut” on dyes sourced via this route – dyers who buy this way get rental-free software.

Other advantages of a shared “colour space” for the whole of a textile supply chain include the potential for easily adding software adjustment to counter data issues arising between different makes of hardware, and in the longer run the architecture lends itself to becoming a platform for even more exciting developments. Although eWarna filed a patent application for the concept behind the system around the world early last year it is keen to allow anyone who has an improved algorithm, new hardware, a consultancy service or “even a way to advise people on what paint colour matches their carpets” to deliver their product or service via the application.

This open approach may explain why it has taken an “outsider” to launch such a system – although in actual fact the management of the company have spent most of their careers in the textile colour industry. The company believes that eventually the price for delivering such software via the Web must decline further as costs reduce and Internet access continues to speed up

and spread. Helping this decline is not immediately to the benefit of standalone software suppliers. And, whilst a shared colour space may well be the only viable way to sell dyes and colorants online, it works well only as a “neutral” platform whereas many established dye suppliers might prefer to make such an application exclusive.

Of course such theoretical considerations are of little interest to most of eWarna’s users, which include some of Asia’s larger textile groups (Nan Fung Textiles is already a shareholder in the company). Most are still testing the system quietly but Prym Newey has been using the system as their only CP tool in their fabric dyehouse in Malaysia for some months. Always keen to find innovative ways to cut costs and improve lead times, they are now working with some of their supply chain partners to build a worldwide colour-sharing network using eWarna. Another obvious market for such a system is online or offline providers of Supply Chain Management software to the textile industry. The Thread, an online supply chain provider with a very strong management background in the textile retailing industry is likely soon to become a strategic partner in that market - eWarna has also developed XML interfaces to its core system to ease such linkages.

With hindsight, Colour Physics over the Web seems an immediately beneficial idea. In reality, it has only become practical since the idea of a dyehouse in Shanghai, a garment maker in Mauritius and a retailer in New York all sharing easy and reasonable internet access has moved from the realm of fantasy to everyday reality. If the textile industry is really to reap the much talked about benefits of moving online, it is an idea whose time must surely have come

More details about the application, and free trial downloads, can be found at [www.ewarna.com](http://www.ewarna.com). The company will be exhibiting at stand 5B-125 at ITMA Singapore.