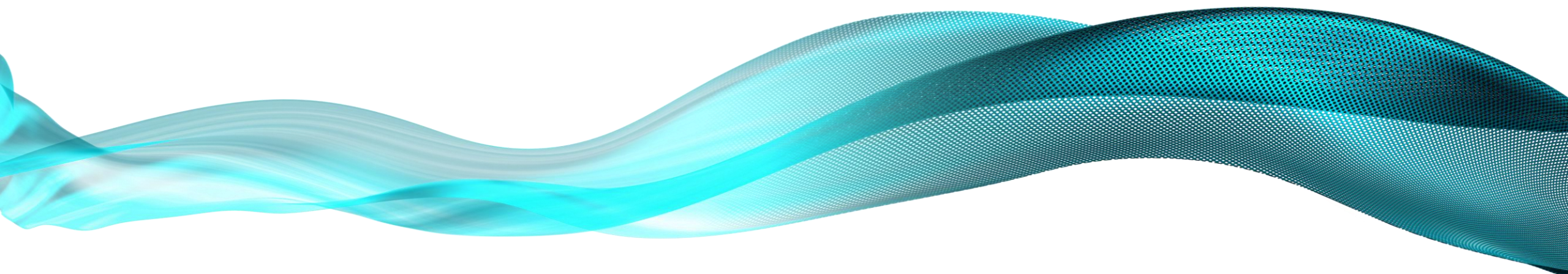


multispectral:technology



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Problem:

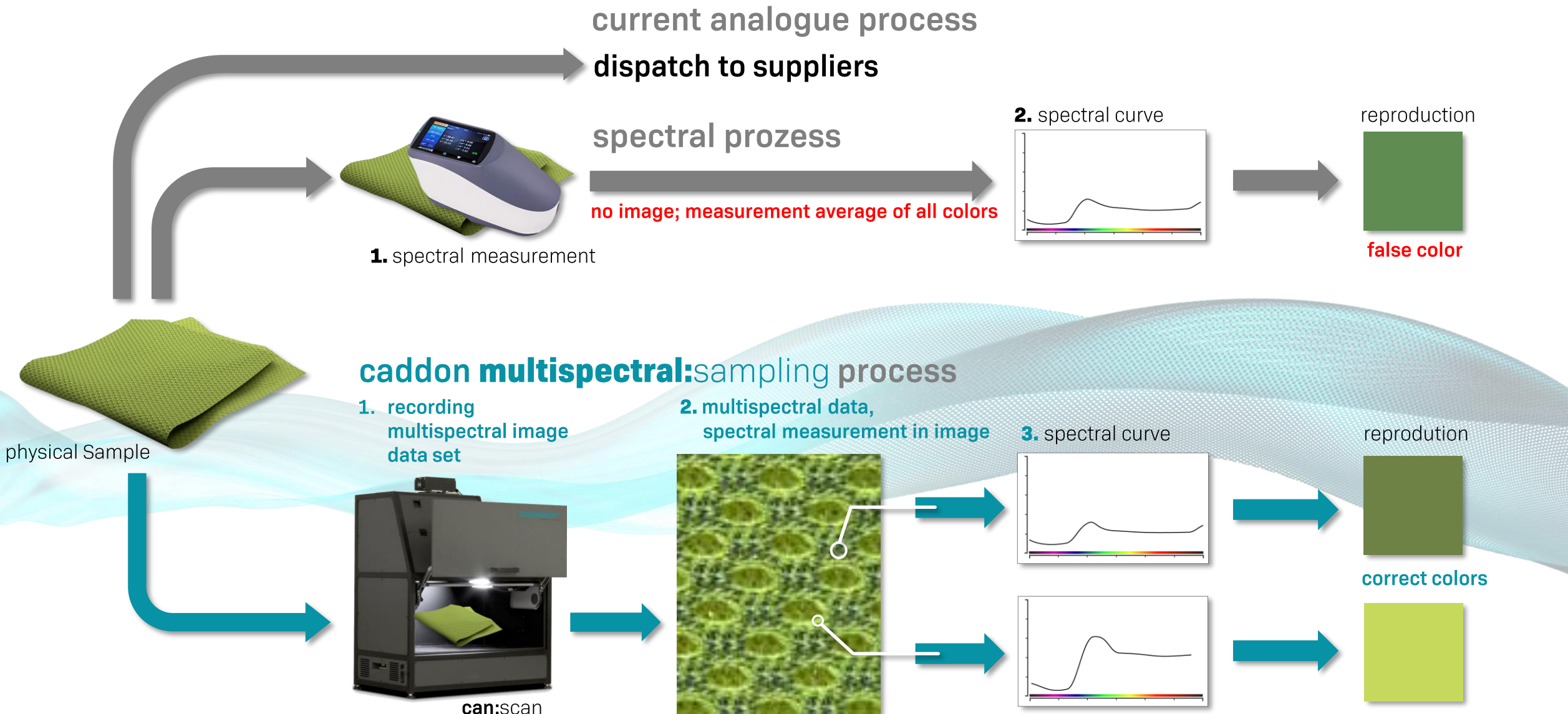
Global dispatch of color samples from textile customers to suppliers

Replacing the expensive, error-prone and time-consuming analogue dispatch of color samples with digital processes has so far failed due to the technical limitations of spectrophotometers:

Spectrophotometers measure incorrectly on patterned surfaces or on different gloss levels.

reliable solution: caddon multispectral:technology

Global distribution of color samples as a reference



Current sampling methods compared to caddon multispectral:sampling

Current analogue and spectral sampling

- high shipping costs
- high labour costs
- high sample costs
- high time requirement
- enormous consumption of resources
- significant environmental pollution
- many color samples cannot be measured spectrally correctly
- this leads to uncontrollable subjective influences in the visual/analogue reproduction
- no predictable production deadlines due to excessive iterative release processes

caddon **multispectral**:sampling

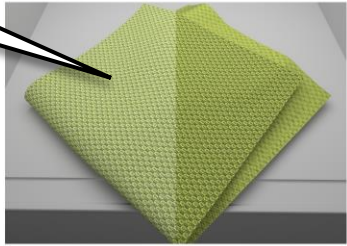
- approx. 85 % less shipping costs
- approx. 80 % less labor costs
- approx. 80 % less sample costs
- approx. 70 % to 80 % time saving
- sustainable conservation of resources
- greatly reduced environmental impact
- unambiguous digital reference
- and valid reproduction
- plannable production dates

caddon multispectral:systems

- automatized spectral color correction of images or textures from any RGB scanners, material scanners or digital cameras

annual license: € 5,950 net

can:spectralize
automated colour correction




- multispectral image- and colordatabase
- hosts / manages multispectral images and spectral measurement values, organizes colors in catalogues
- worldwide exchange of spectral/multispectral data between customers and suppliers (user rights-managed client-server system)
- reduces color matching processes by more than 80%

annual license: € 12,768 net

can:colors
spectral colour database



can:colorize
virtual weaving



- creates photorealistic textures for 3D/CGI
- colorizes virtual textile pattern on yarn and fiber level
- recolorizes virtual weave patterns within a second
- imports/exports colors from the caddon can:colors database

annual license: € 6,750 net

- unique digital inspection system
- standardized light and monitor observation system
- standardized observation conditions
- for visual and metrological evaluation of spectral data and multispectral images
- online reviews from customers and suppliers in real time

HaaS monthly: € 454 net
purchase: € 11,950 net

can:view
standardized viewing system



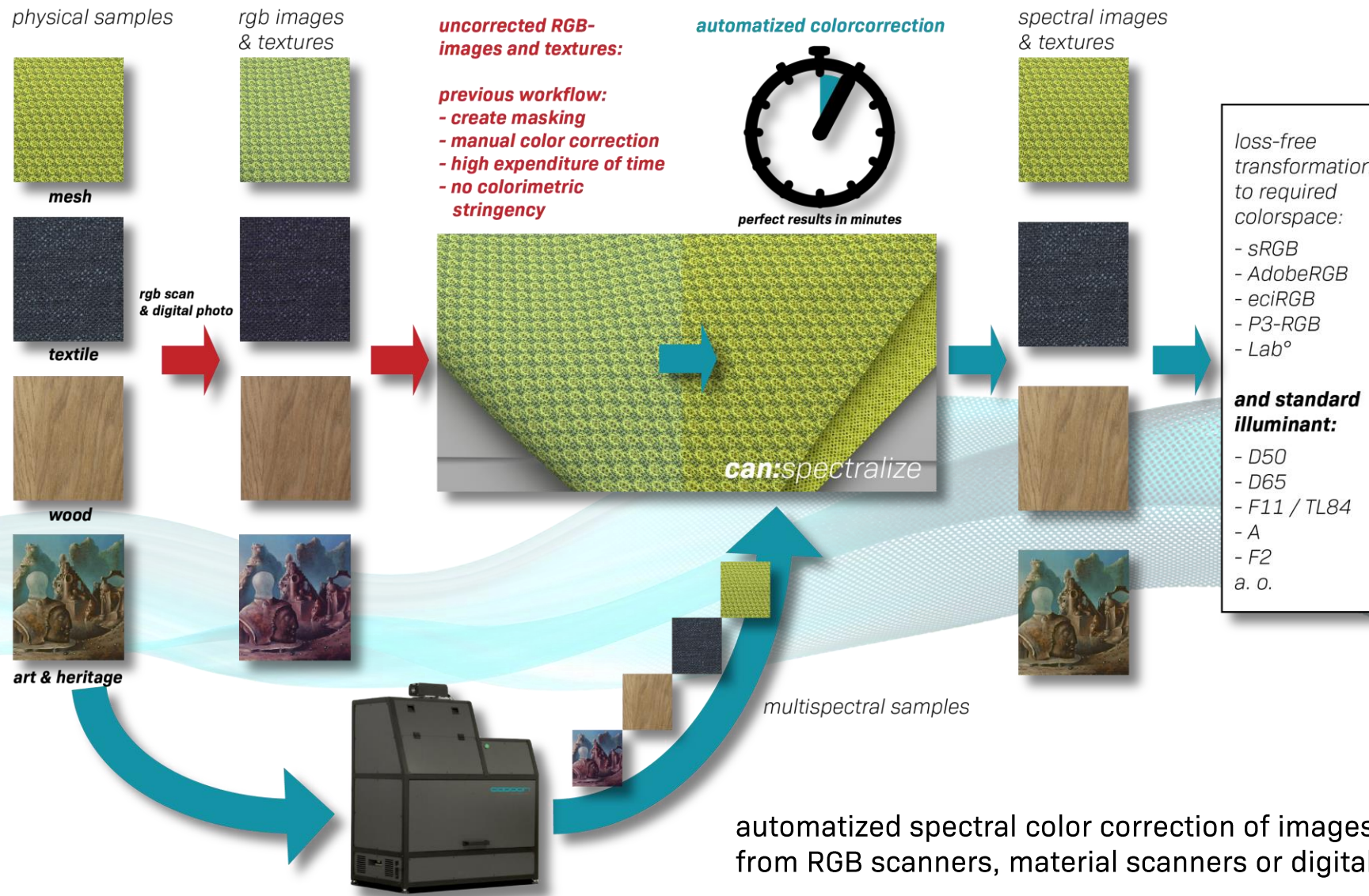
can:scan
colour digitization



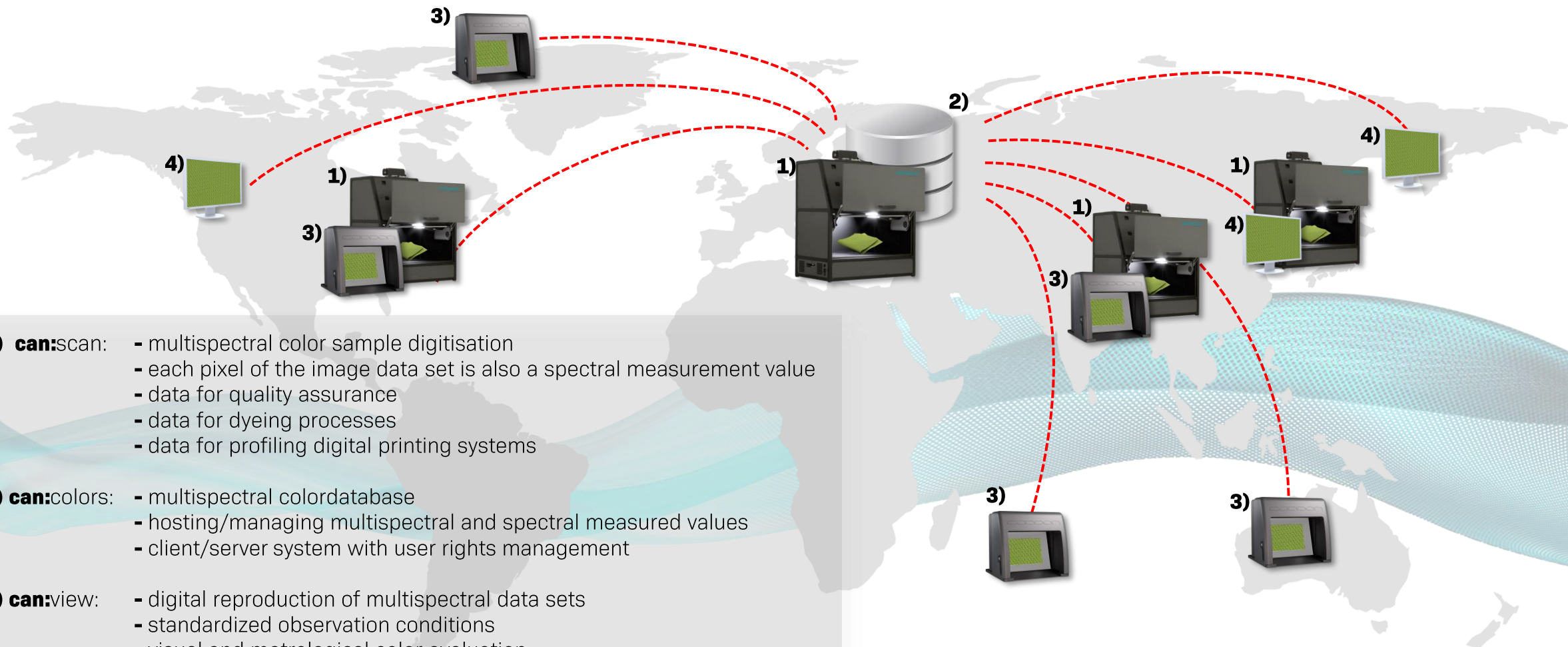
- multispectral color digitizing system - the heart of the caddon systems
- valid color digitization and measurement within seconds
- also measures on complex patterned wood surfaces, tiles, colored fabrics, carpets, etc.
- generates high-quality ICC profiling data for digital printing systems
- recording area depending on lens, standard 180 x 280 mm
- captures three-dimensional patterns (up to approx. 150 mm)
- provides precise spectral values for pigment and ink formulation systems

HaaS monthly: € 2,717 net
purchase: € 93,500 net

can:spectralize: automatized spectral color correction



multispectral:communication



- 1) can:scan:**
- multispectral color sample digitisation
 - each pixel of the image data set is also a spectral measurement value
 - data for quality assurance
 - data for dyeing processes
 - data for profiling digital printing systems

- 2) can:colors:**
- multispectral colordatabase
 - hosting/managing multispectral and spectral measured values
 - client/server system with user rights management

- 3) can:view:**
- digital reproduction of multispectral data sets
 - standardized observation conditions
 - visual and metrological color evaluation
 - online and in real time

- 4) can:client:**
- without **can:view** only metrological evaluation, no visual assessment

Return on Invest

ROI against **shipment cost**

current analogue process

shipping costs for sending color samples to suppliers ("lab dipping process")

between € 150,000 and € 400,000 per year^{*}, on average: € 275,000

TCO multispectral:sampling process

can:scan: € 93,500 + maintenance: € 9,004 + can:view: € 11,950 + maintenance: € 989 + can:colors: € 12,768 € 128,211

ROI = € 275,000 : € 128,211 = factor 2.145 / 12 months : factor 2.145= ROI in 5.6 months

^{*} Customer **Takko** recorded savings of €245,000.00 per year in pure shipping costs excluding working time, see page 12

ROI against **labor cost**

labor costs spectral workflow: The visual and metrological comparison of 500 spectral reference colors from customers with existing product colors previously required **400 man-hours of work** without clear results. Annual labor cost: 400 h x € 45/h x 12 months^{*}

400 manhours x € 45 x 12 months = labor cost per year € 216,000

TCO multispectral:sampling process

takes less than 10 man-hours for these 500 color assessments with clear results. Annual labor cost: 10 h x € 45/h x 12 months^{*}

can:scan: € 93,500 + maintenance: € 9,004 + can:view: € 11,950 + maintenance: € 989 + can:colors: € 12,768 + labor cost: € 5,400 € 133,611

ROI = € 216,000 : € 133,611 = factor 1.617 / 12 months : factor 1.617 = ROI in 7.4 months

^{*} Customer **Madeira** recorded 80 working hours for 100 colors with the previous spectral workflow compared to less than 2 working hours with the multispectral workflow see page 12

References caddon **multispectral**:technology



Radek Sorcik
Sen. Director Purchase
Quality Assurance
Takko Hold. GmbH

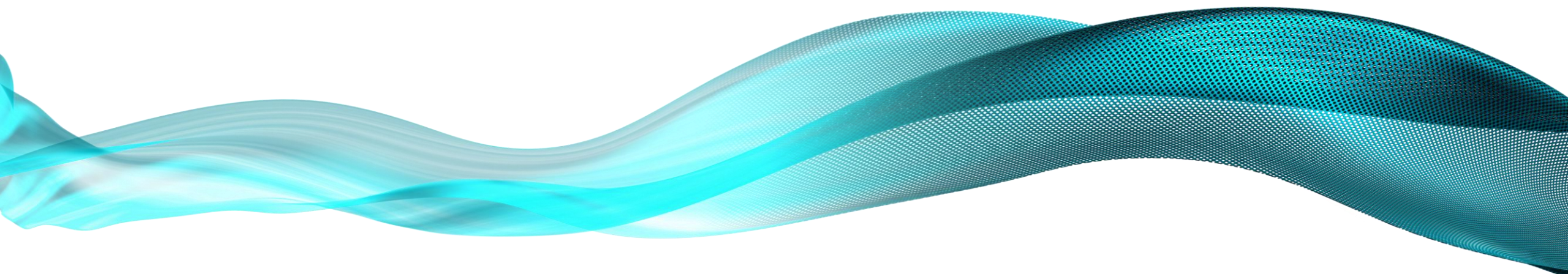
„The digital transmission with the caddon **can:scan** systems makes it possible to save the previous shipping costs of the physical samples to the suppliers in Asia, Bangladesh and India amounting to approx. € 245,000 per year“



Sebastian Schade
Head of Global
Sales & Marketing
Jens Zeuke
Area Sales Manager
Ulrich + Michael
Schmidt & Co. GmbH

„We receive spectral values of the "coloro" color fan from sporting goods manufacturer customers. Previously, these were compared visually and with the spectral measurement values of our yarn winding cards from our calibration series. The effort required for 100 color specifications amounted to at least 80 to 100 man-hours with not unambiguous results that were often revised by customers. Since we introduced digitization with the multispectral color references of our yarn winding cards generated by caddon technology, the matching of these 100 color references can be reliably completed in less than 2 hours. With clear results confirmed by our customers.“

multispectral:technology



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