GEMTELLIGENCE

100 Jahre Erfahrung in einer Software

Philipp Schmid

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CSEM - TECHNOLOGY ORGANIZATION IN SWITZERLAND

Technology Transfer to Industry

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APPLIED RESEARCH

Development of deep technology bricks through public funding

Valorization through direct industry mandates following a full cost model (time and material)

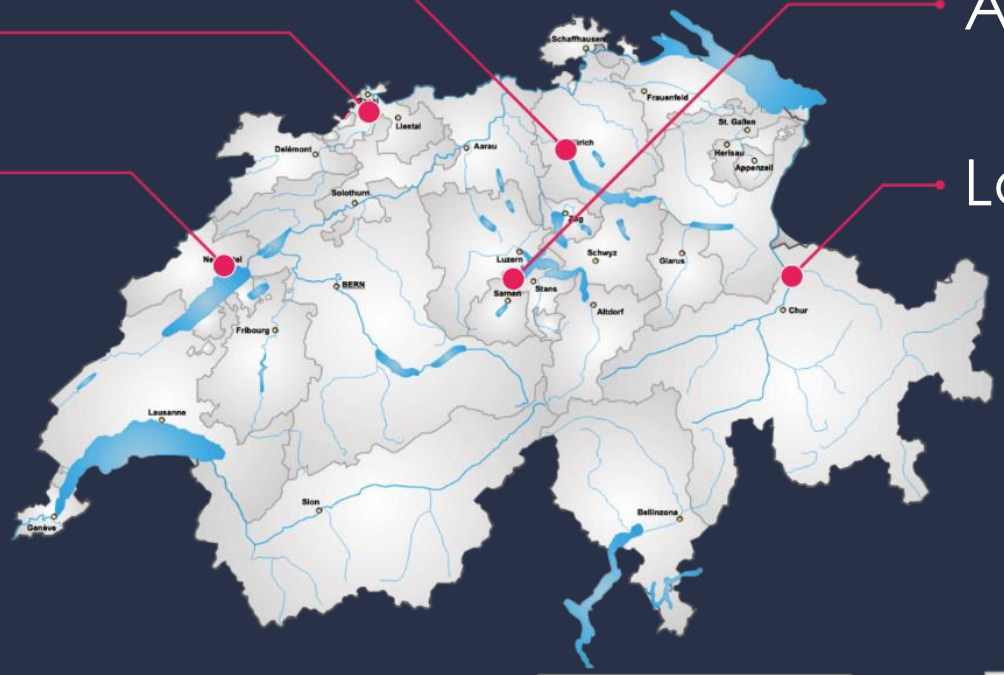
TECH TRANSFER

Close to **industry**

Zürich

Muttenz

Neuchâtel



Alpnach

Landquart

89.2
Turnover (mio CHF)

525
Persons

225
Industrial clients

60
European projects

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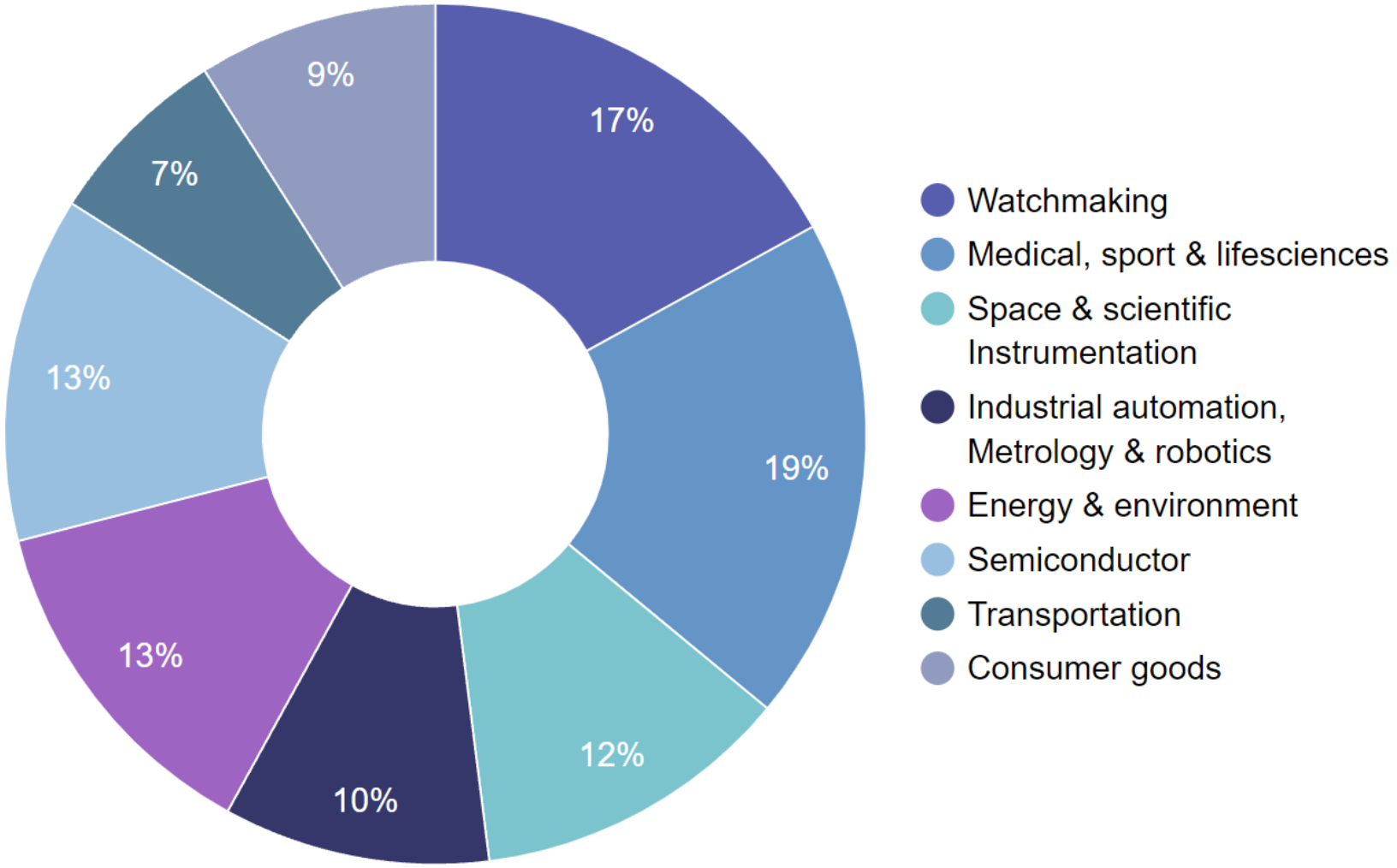
225 industrial customers served in 2020



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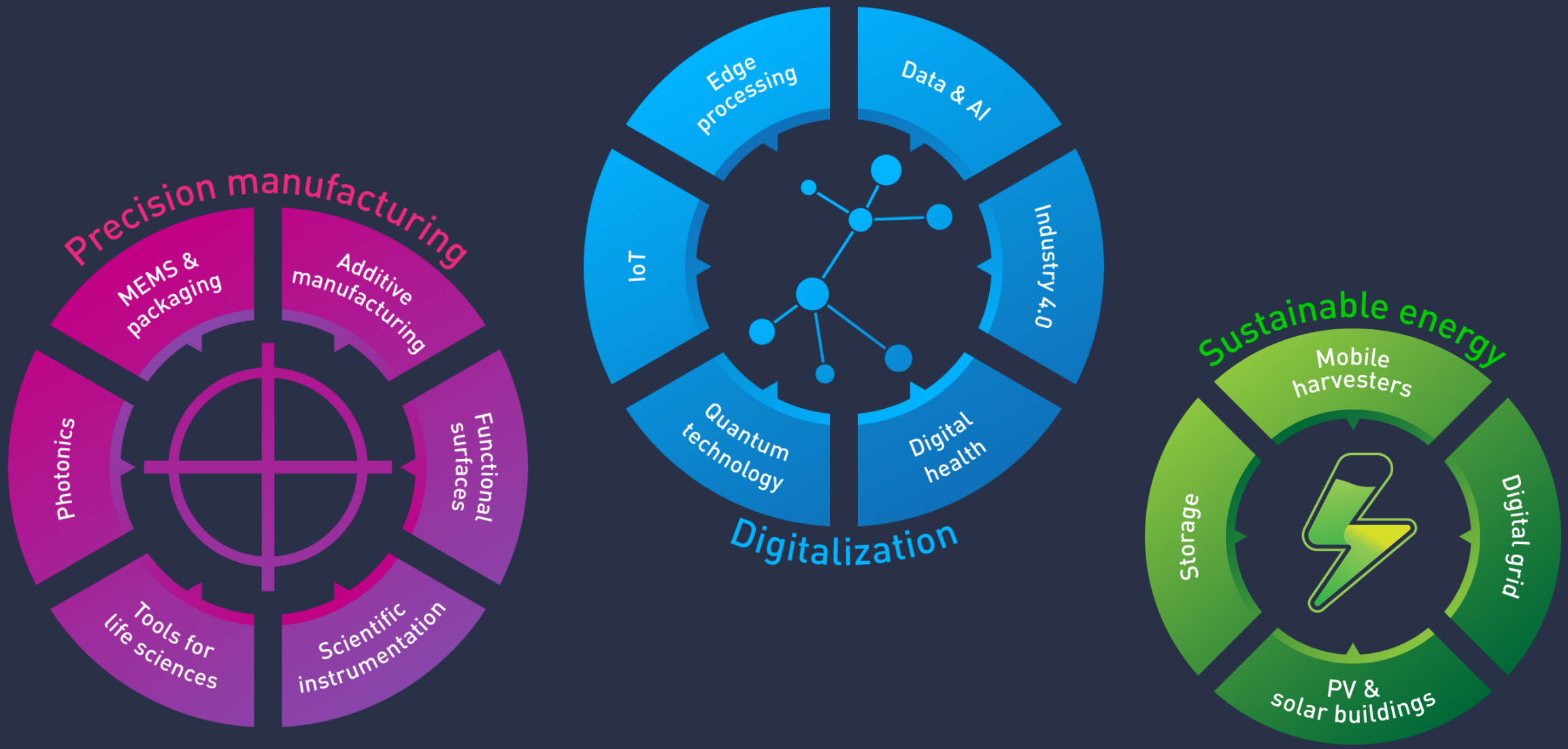
Technologies **in focus** at CSEM



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Industry 4.0 & Machine Learning

Quality and Process Control

Predictive Maintenance

Digital Manufacturing

« Highest Efficiency and Perfect Quality »

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WHAT DOES A GEMOLOGICAL LABORATORY DO

Service Provider for the Industry:
Gemological Reports

Determination of identity, authenticity, and origin of gemstones based on material-science analysis

What defines the value of a gemstone?

Origin!

Bracelet with nine sapphires from **Kashmir**

sold at auction for
US$ 6,900,000

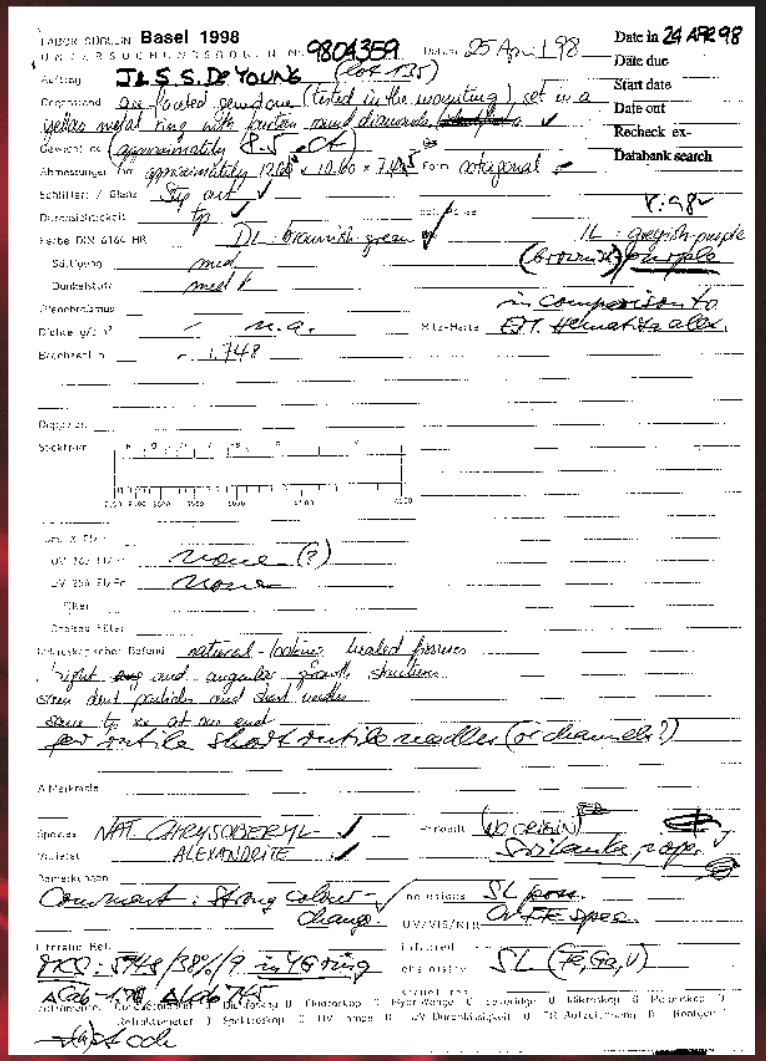
(same stones from **Madagascar**:
below US$ 1,000,000)

What defines the value of a gemstone?

Authenticity!

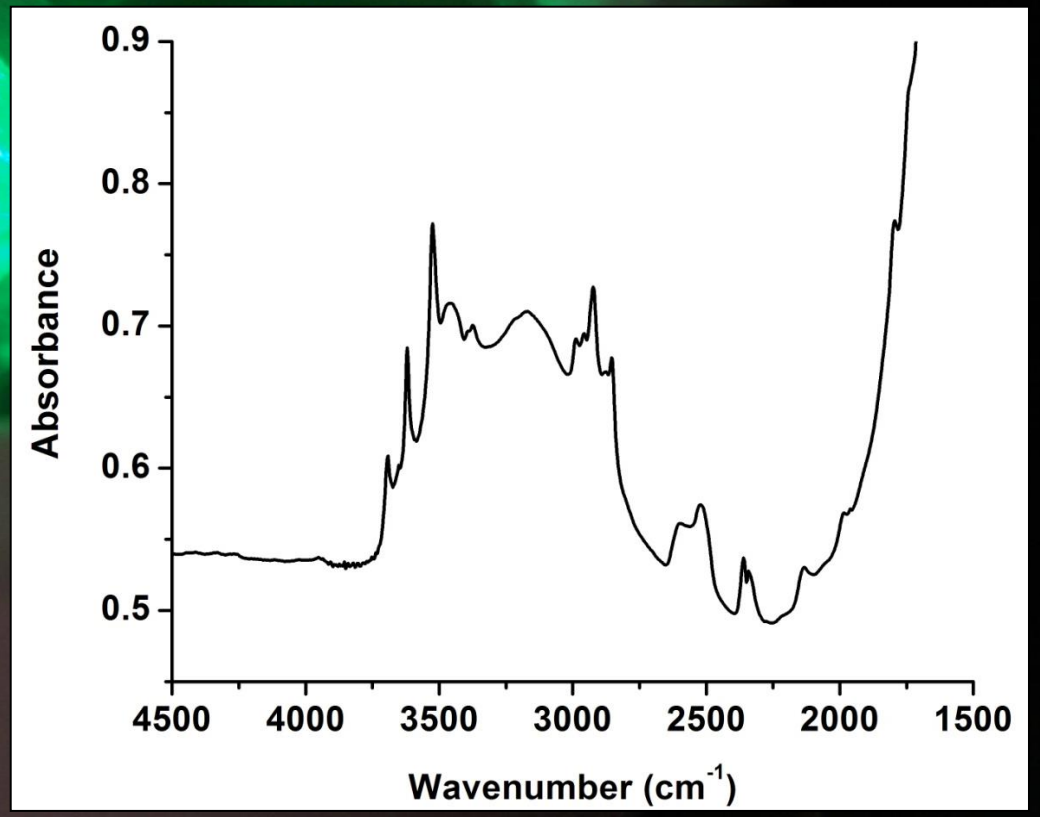
Weight:	5.14 ct
Species:	Natural ruby
Origin:	Burma
Sold for:	**US$ 600'000**
Condition:	untreated

Weight:	5.62 ct
Species:	Natural ruby
Origin:	Burma
Sold for:	**US$ 30'000**
Condition:	heated

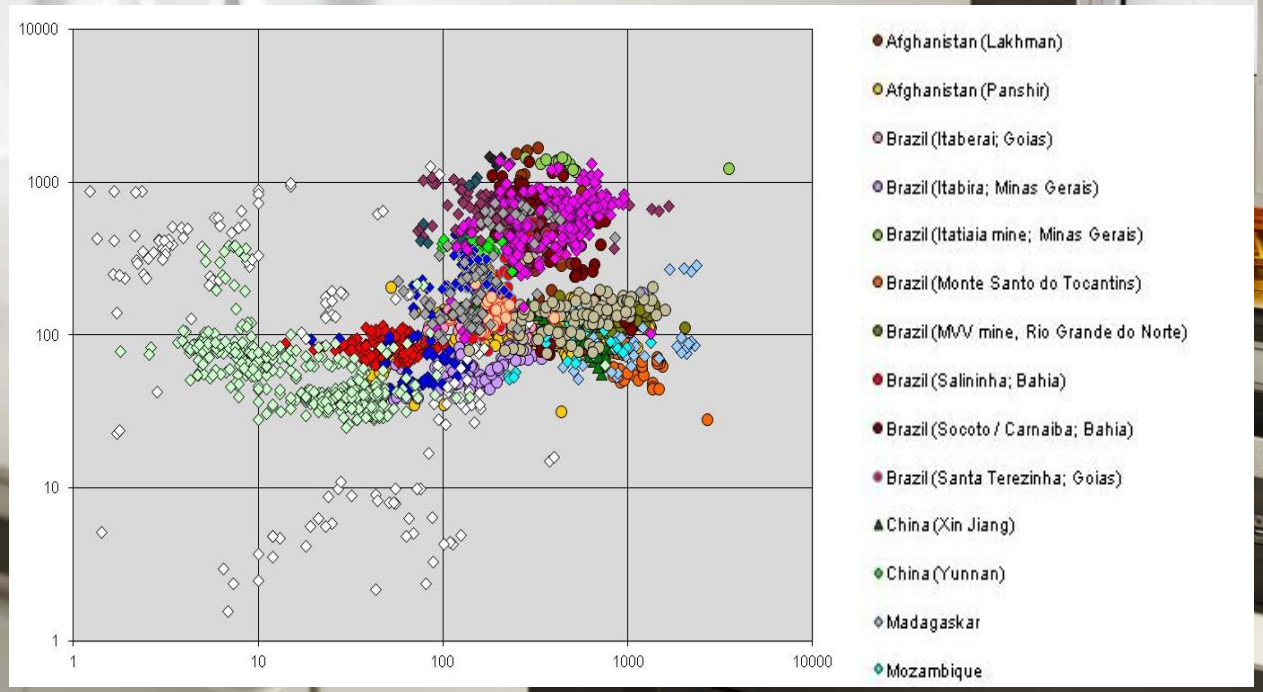


Photomicrograph of an apatite crystal included in a ruby from Mogok, Burma (Myanmar).

Spectroscopic properties



Chemical Fingerprinting



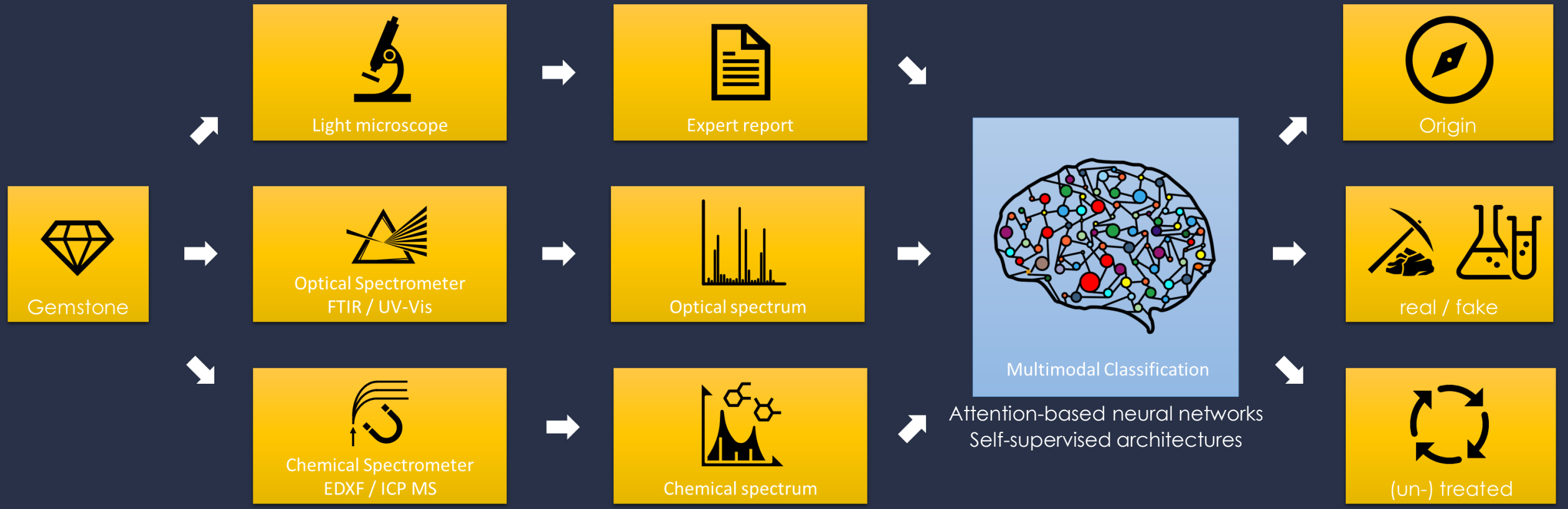
Laser Ablation –
Inductively Coupled Plasma –
Mass Spectrometry

GROUND TRUTH

Reference stone collection

28'000 Samples from all commercially relevant gemstone mines in the world

Expert Experience into AI Software



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europa star | WATCH FILES

BUILDING A GEMSTONE SUPER-EXPERT

R&D

Español Français

By Serge Maillard

MARCH 2021

Far greater volumes of gemstones, evaluated automatically? This is the promise offered by Swiss jewellery house Gübelin, which has joined forces with CSEM to develop a revolutionary data processing tool using artificial intelligence and machine learning. This new technology also opens up some exciting prospects for the watchmaking industry.

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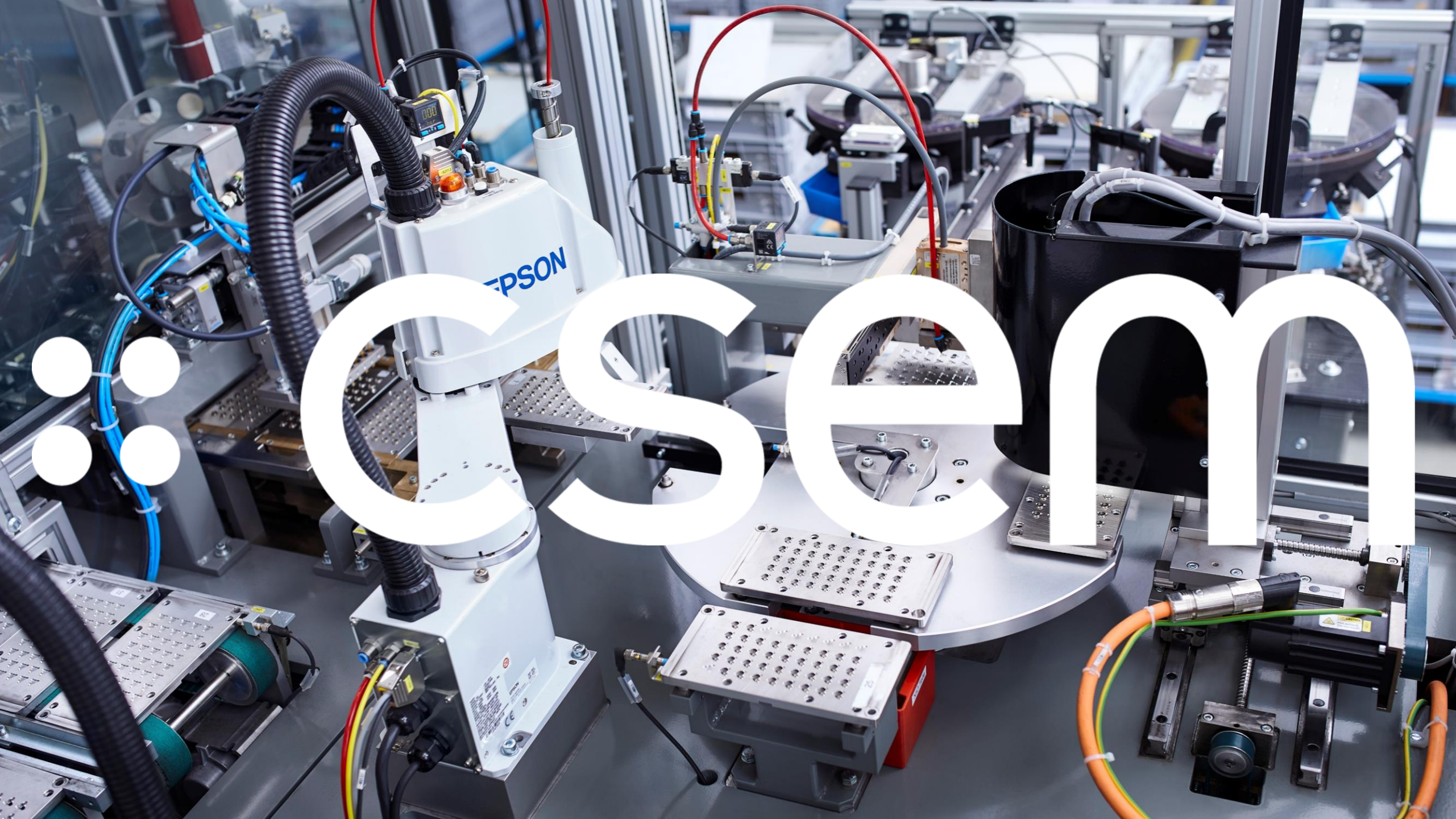
GÜBELIN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