VULQ1 multibeam solutions
The individual traceability enabler

EPIC Members New Product Release
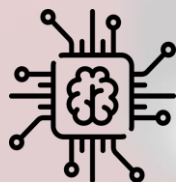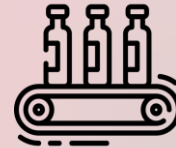
Florent Thibault, CEO

March, 29th 2022

Experts in high-throughput industrial laser material processing

We design and deliver innovative high throughput laser processing solutions to support positive new product innovation in the industry of the future

Applications

- **Laser Marking**
  - Individual product traceability
  - Anti-counterfeiting

- **Laser Micromachining**
  - Micro-drilling
  - Surface texturing

Sectors

- Luxe

- Industry

- Medical

- Automotive / Aeronautics

30/03/2022

Combined expertise to deliver unique laser solutions

Laser application service

Laser-matter interaction expertise

- ✗ *Faisability studies*

- ✗ *Process development*

- ✗ *Pre-series / Prototyping*

plastics

OEM product : VULQ1

Patented multibeam laser technology

- ✗ *Design and manufacturing in our factory*

- ✗ *Standard offering*
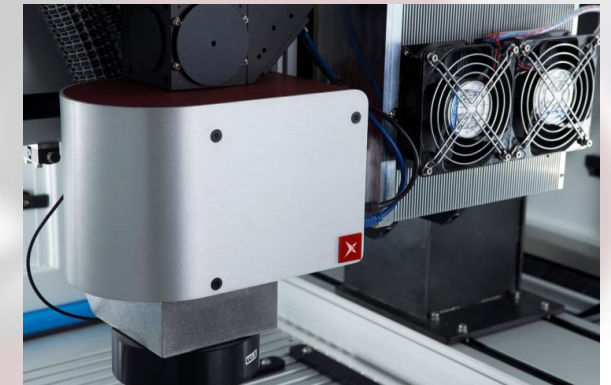
- ✗ *Marking and micromaching lines*

Laser solution integration

Customized to application

- ✗ *Autonomous laser processing system*

- ✗ *Includes specific software optimisation*

- ✗ *Retrofit/integration in std machine environment*

CONFIDENTIEL / CONFIDENTIAL

Our innovation: Multibeam laser processing
VULQ1 allows to use 100 beams…….from one single laser

VULQ1 patented Multibeam technology allows to **generate 10, 100 or 1000 laser beamlets** on-demand, from one single laser beam.
The beamlets are **independently controlled** by **software**, in a **dynamic** manner.
They are applied **simultaneously** to the material, **scaling up process throughput without any compromise on quality**.

Throughput x10 – x100
Spatial resolution < 50µm

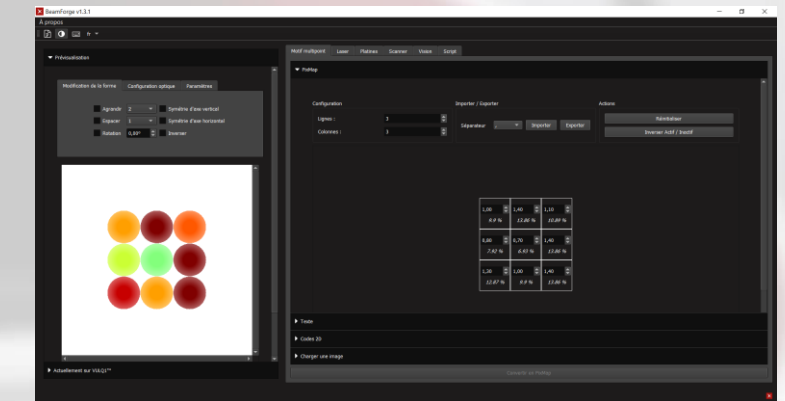# VULQ1 OEM: *Standard multibeam beam shaping system*

	Marking		Micromachining
	VIS-P050	**NIR-P050**	**NIR-P100**
Wavelength range	500-550nm	1000-1100nm	1000-1100nm
Max power	50W	50W	100W
Pulse duration	>1ns	>1ns	>500fs
Max energy	15mJ	30mJ	1mJ
Transmission	90%	90%	95%
Switching time	50ms	100ms	200ms
Spatial resolution (f100)	25µm	50µm	20µm

VULQ1 OEM line dedicated to industrial applications
Includes:
1. VULQhead: multibeam laser head
2. VULQontrol: 2U rack controller
3. Beamforge software: embeddable API
4. OEM service support strategy: hot swap

VULQ1 Marking Solutions:

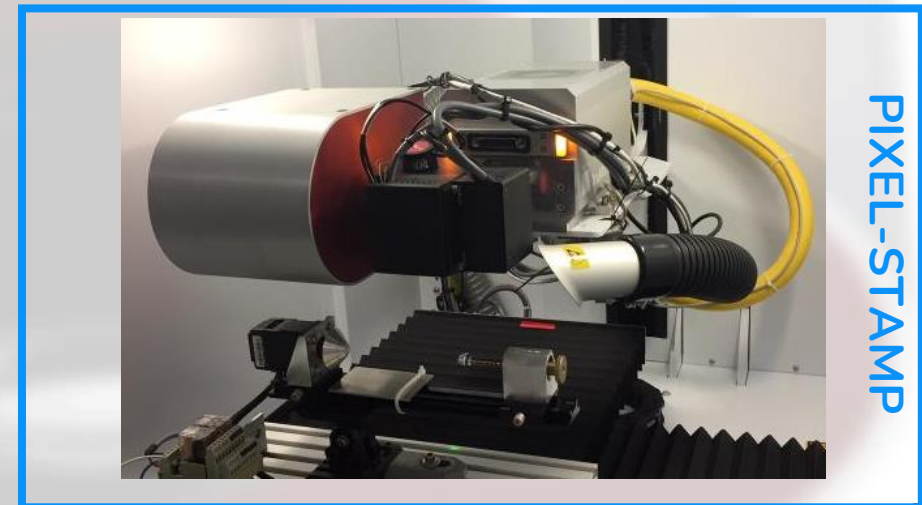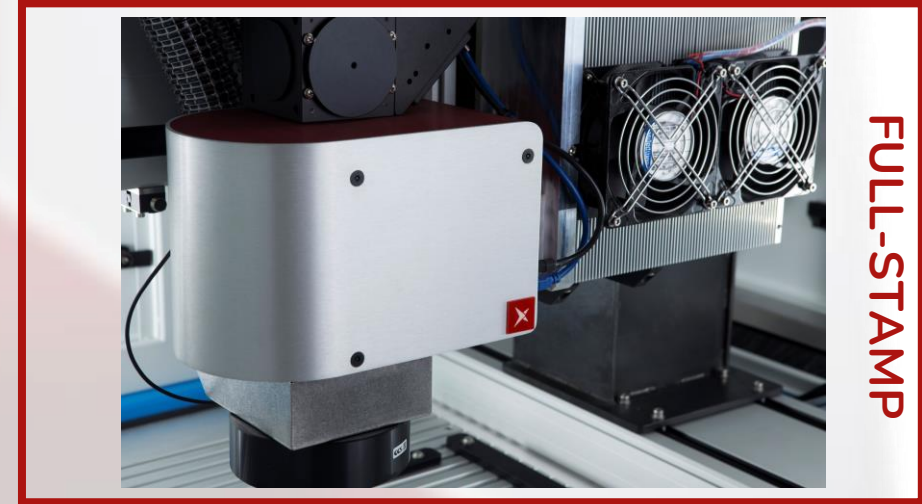## *Integrated multibeam laser marking solutions*

Standardized multibeam laser processing solution platform, configured for application - 2 base configurations:
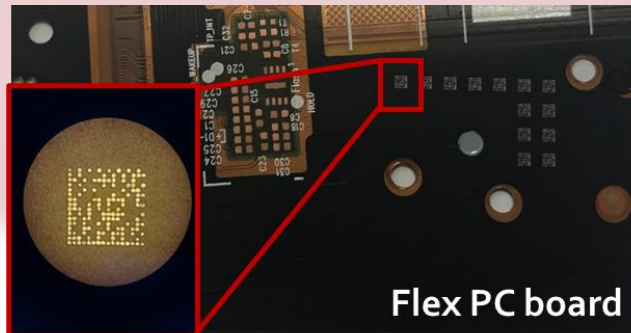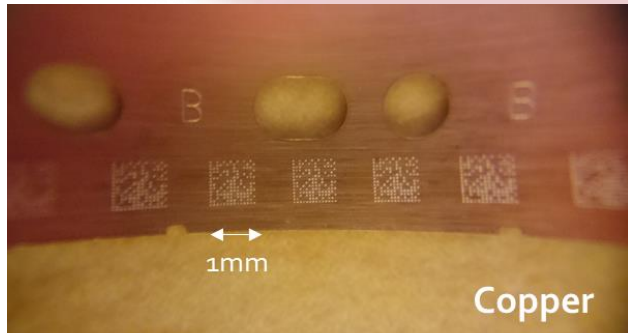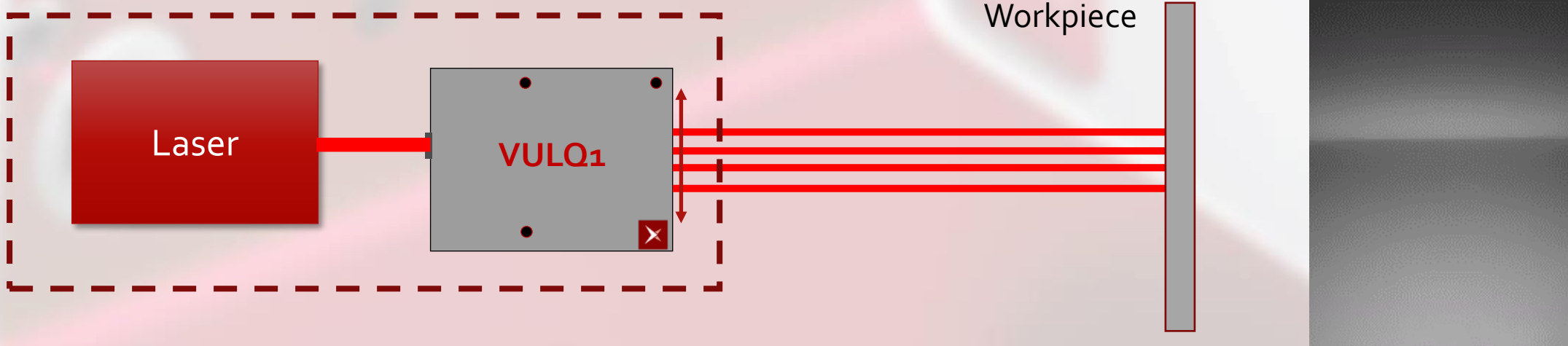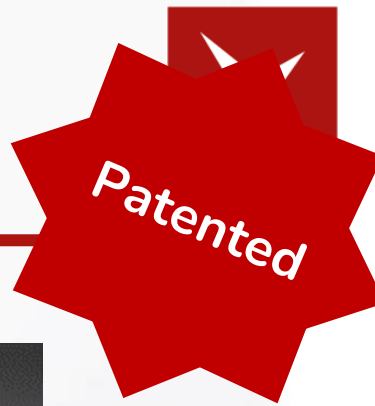
1. **FULL-STAMP**
2. **PIXEL-STAMP**

• <u>Solution includes</u>:

1. Integrated multibeam laser marker
   • Laser + VULQ1(+ scanner)
   • Controller
2. Software:
   • API version, embeddable in customer environment
   • « *laser digital tools* » (programs) for the application
3. Service package:
   • Process development
   • Installation, settings and configuration
   • Training
   • Regular software updates

FULL-STAMP

PIXEL-STAMP

FULL-STAMP marking solution: 1 laser pulse = 1 code

Patented

Workpiece

Laser

VULQ1

1mm

Copper

Flex PC board

- **Key feature: high-throughput micro-codes**
- Applications
  - Small parts traceability
  - Discrete traceability
  - Anticounterfeting

Application case:
Batch product identification on small medical device
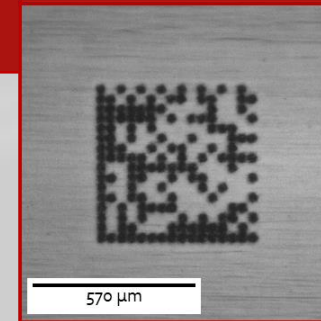
MATERIAL:
PVC polymer

2D CODE TYPE:
MICROCODE DM16x16

COST :
<0,0001€/marking

Pharmaceutical market

- On-the-fly marking, **77 000 parts/h**

- **High resolution** , 570µm code

- **On-site smartphone reading application** for customers to identify product types

Application case:
Discrete authentication solution on luxury products
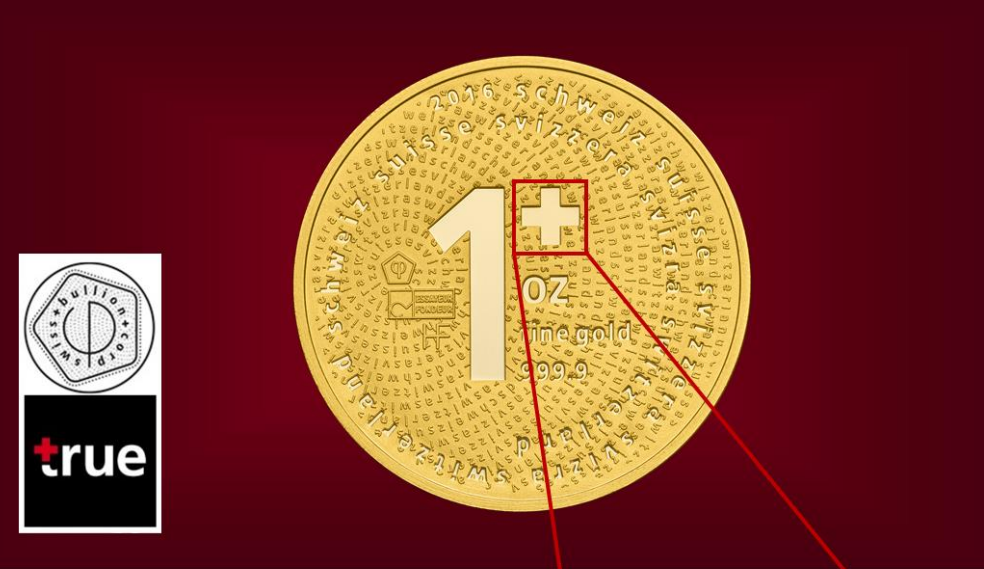
MATERIAL:
Pure gold 99,999%
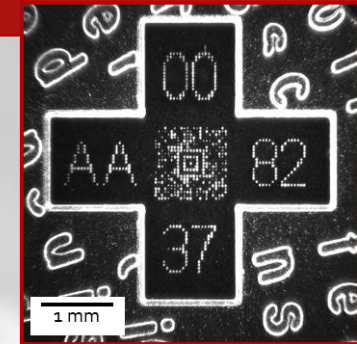
2D CODE TYPE:
- MICROCODE AZTEC 23x23
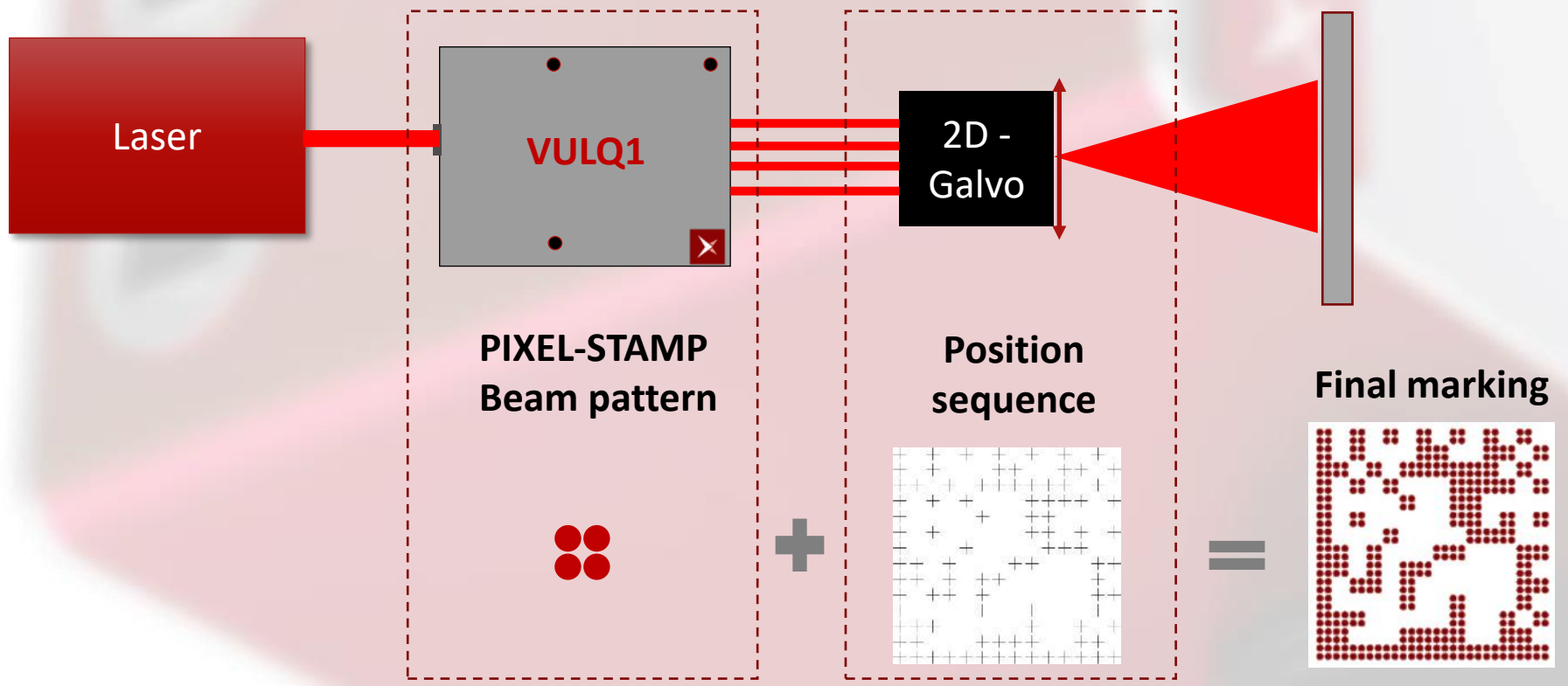
COST :
- 0,001€/marking

Luxe market

- **Cost-effective authentication solution**: authenticating information is hidden in the marking
- Customer owns encryption key
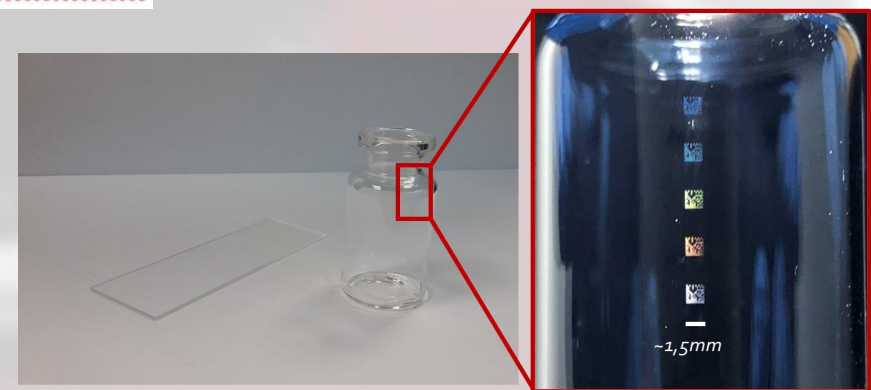- **Readable on-site with smartphone** based reading solution

PIXEL-STAMP Marking method: 1 pulse = 1 pixel

Laser

VULQ1

2D - Galvo

PIXEL-STAMP Beam pattern

Position sequence

Final marking

+

=

- **Applications**
  - Traceability on technical materials (glass, polymers)
  - Customer engagement (QR codes)

~1,5mm

Application case:
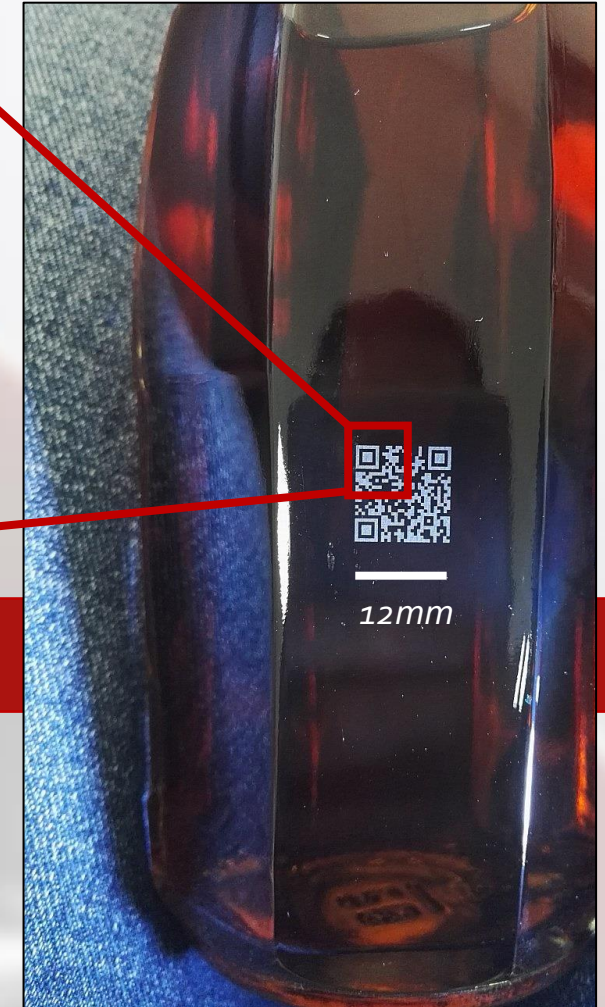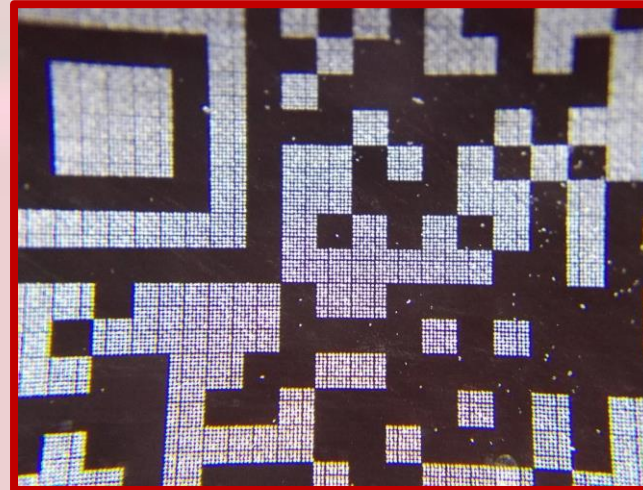# Developping customer engagement on high-end liquors

MATERIAL:
- Soda-lime glass

2D CODE TYPE:
- QR Code, 29x29

COST :
- 4c€/marking

12mm

For **high-end liquors** market

- 12mm size QR code in <2s
- **Direct reading with smartphone**
- Perfect marking quality for **superior brand image**

30/03/2022

Thank you for your time and interest

For more details:
- Follow us on LinkedIn: qiova-laser
- Meet us on our website: www.qiova.com