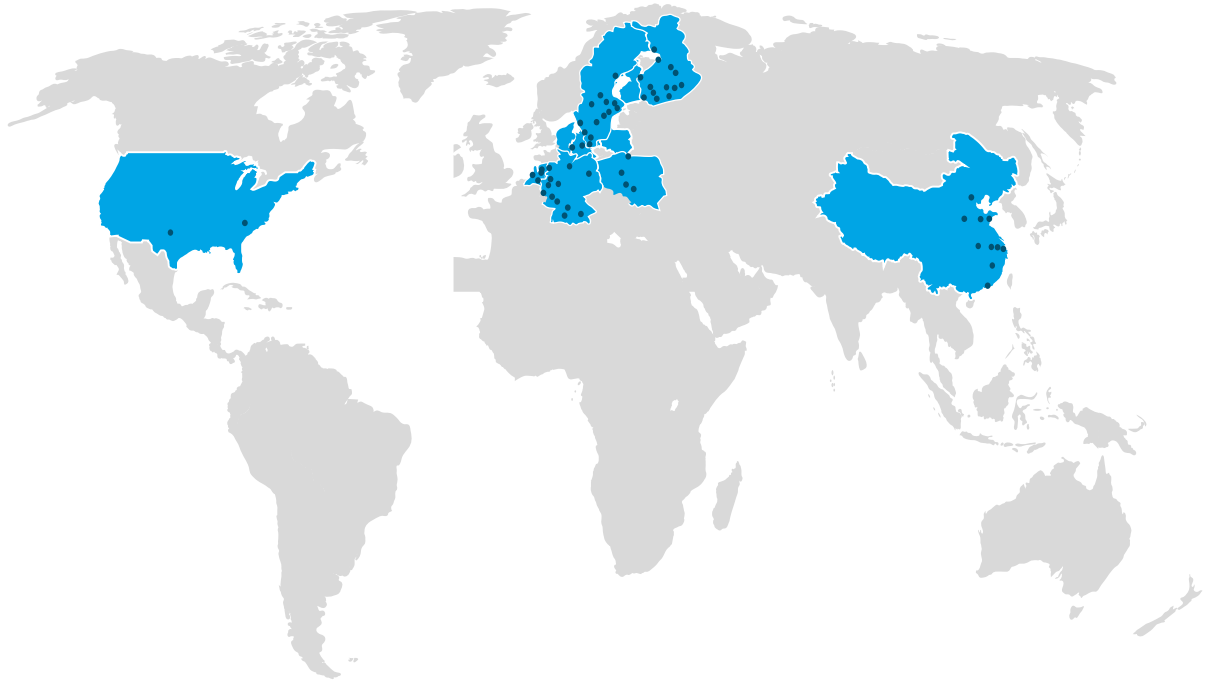
Flexibility and shorter changeover times in packaging

Who are we?

Etteplan, formerly known as Tegema

Offices in Finland, Sweden, the Netherlands, Germany, Poland, Denmark, USA and China



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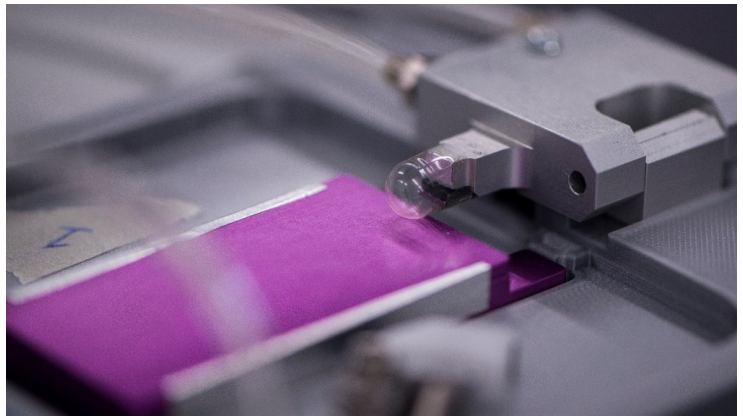
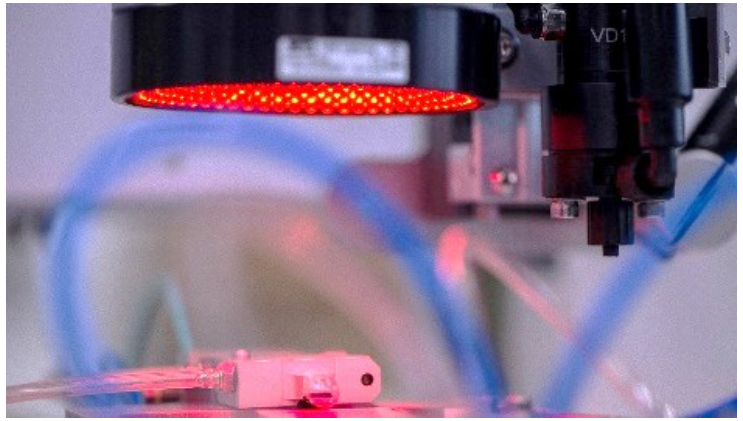
What do we do?

Helping you to create lasting impact

High-tech system integrator for accurate assemblies and optimal production processes





Typical photonics packaging example at customer's R&D site

- R&D setup, no integration of components/modules
- Self-programmed interface & GUI in Python for alignment
- Changing setup for new applications/samples: 1-3+ days

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Today’s photonic packaging challenges

Flexibility

Changing the manufacturing process for a new product is time-consuming and requires resources

Repeatability

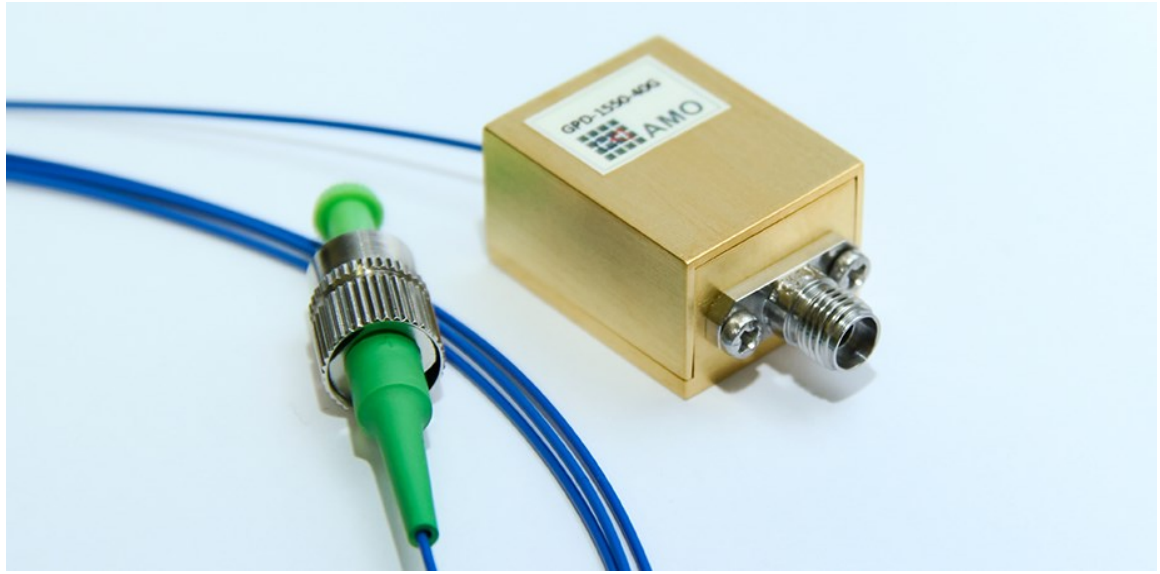
Small series are often manual manufactured

small variations in the manufacturing process can result in significant **differences in performance**.

Yield

Poor alignment accuracy

Due to **manual manufacturing or human interventions, errors** occur



AMO's packaged graphene photodetector. Image credit: AMO

Graphenea

AMO

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Involved parties

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 971398

Project: ULTRAPHO Fast track to Innovation

Project goal:

Validation and commercialization of a graphene photodetector, from fabrication to the final product

European Commission

Horizon 2020
European Union funding
for Research & Innovation

Our challenge in the Ultrapho project

Develop and provide a solution for the back-end assembly process of this product, where flexibility is a crucial element

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Our solution

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Modular Machine Platform

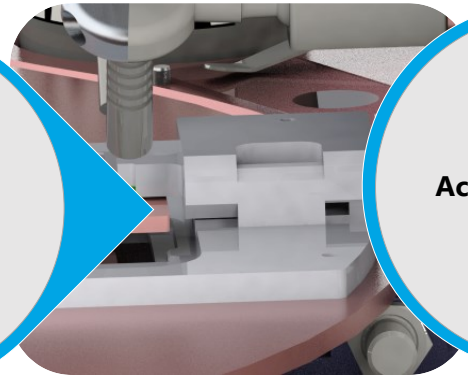
WITH

Flexible Production Solution

Powered by PI

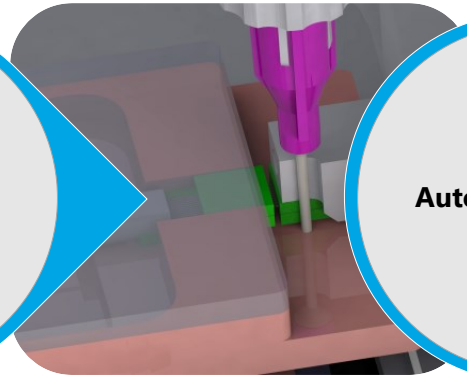
Highlights photonic assembly functions and specifications of our Indigo machine

Mating of standard optical connector and gripper technology

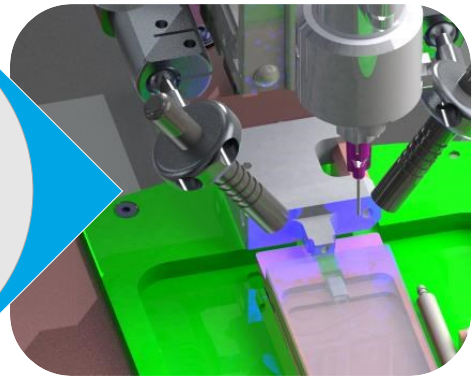


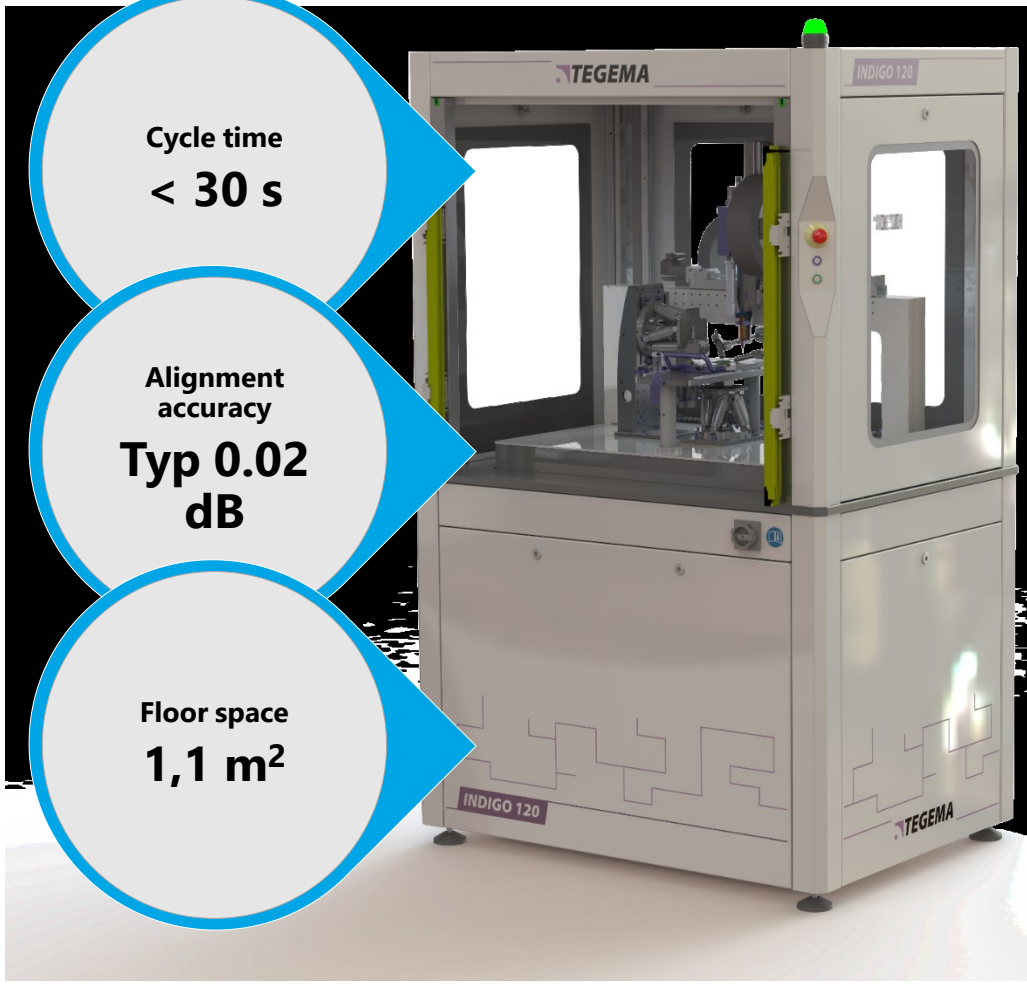
Active alignment

Automatic Dispensing



Automatic curing





Cycle time
< 30 s

Alignment accuracy
Typ 0.02 dB

Floor space
1,1 m^2

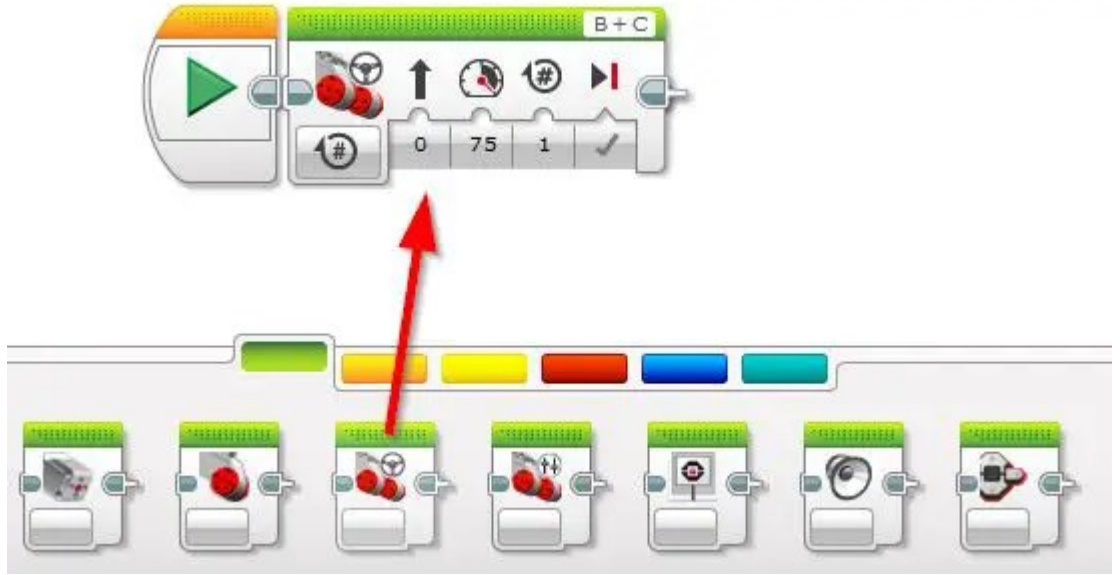
Development

To accommodate for the short changeover time and enable:

- **Flexibility**
- **Ease of use**

we have been inspired by **Lego** and **Blockly** to develop our software innovation

Blockly



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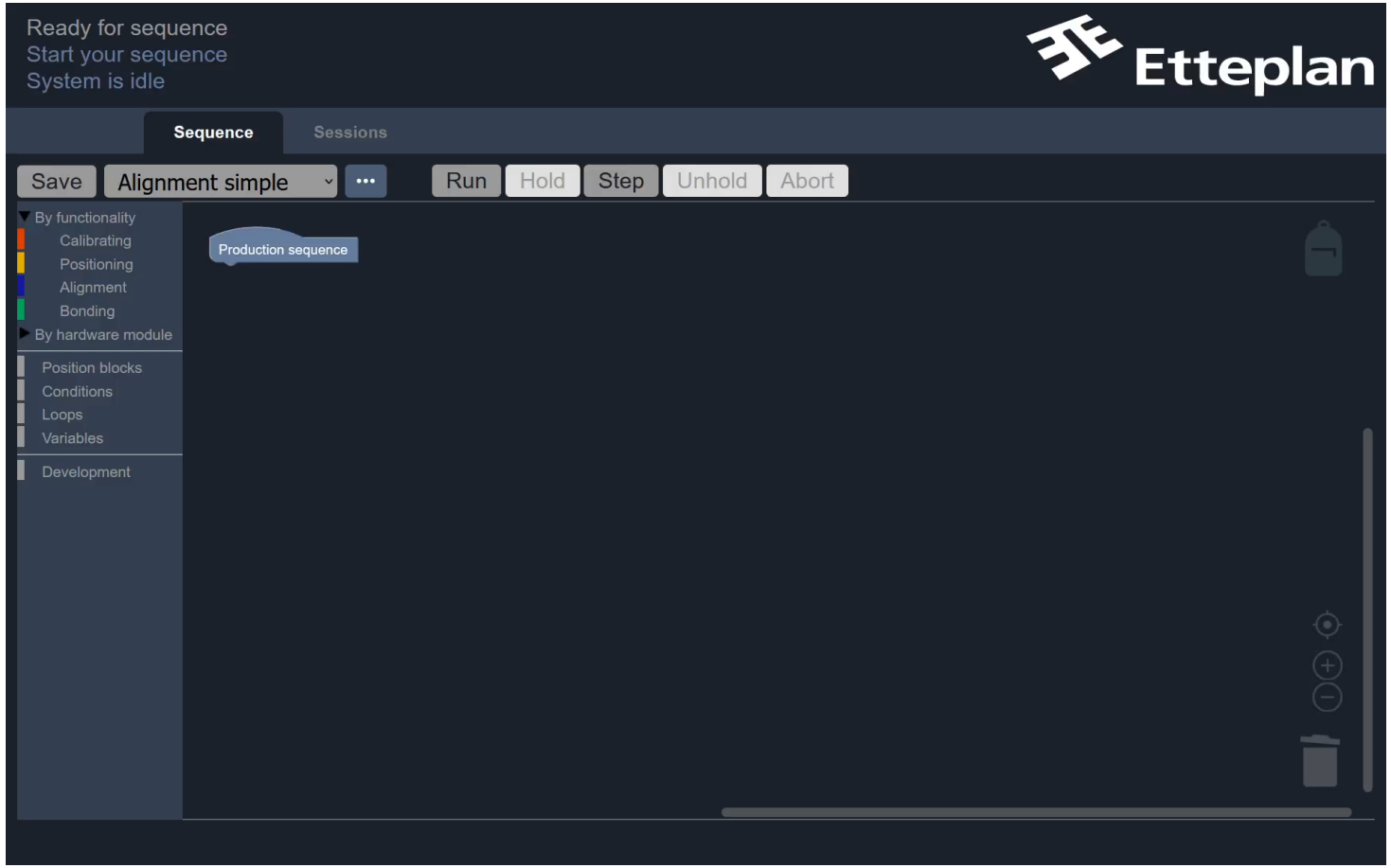
Flexible Production Solution (FPS)



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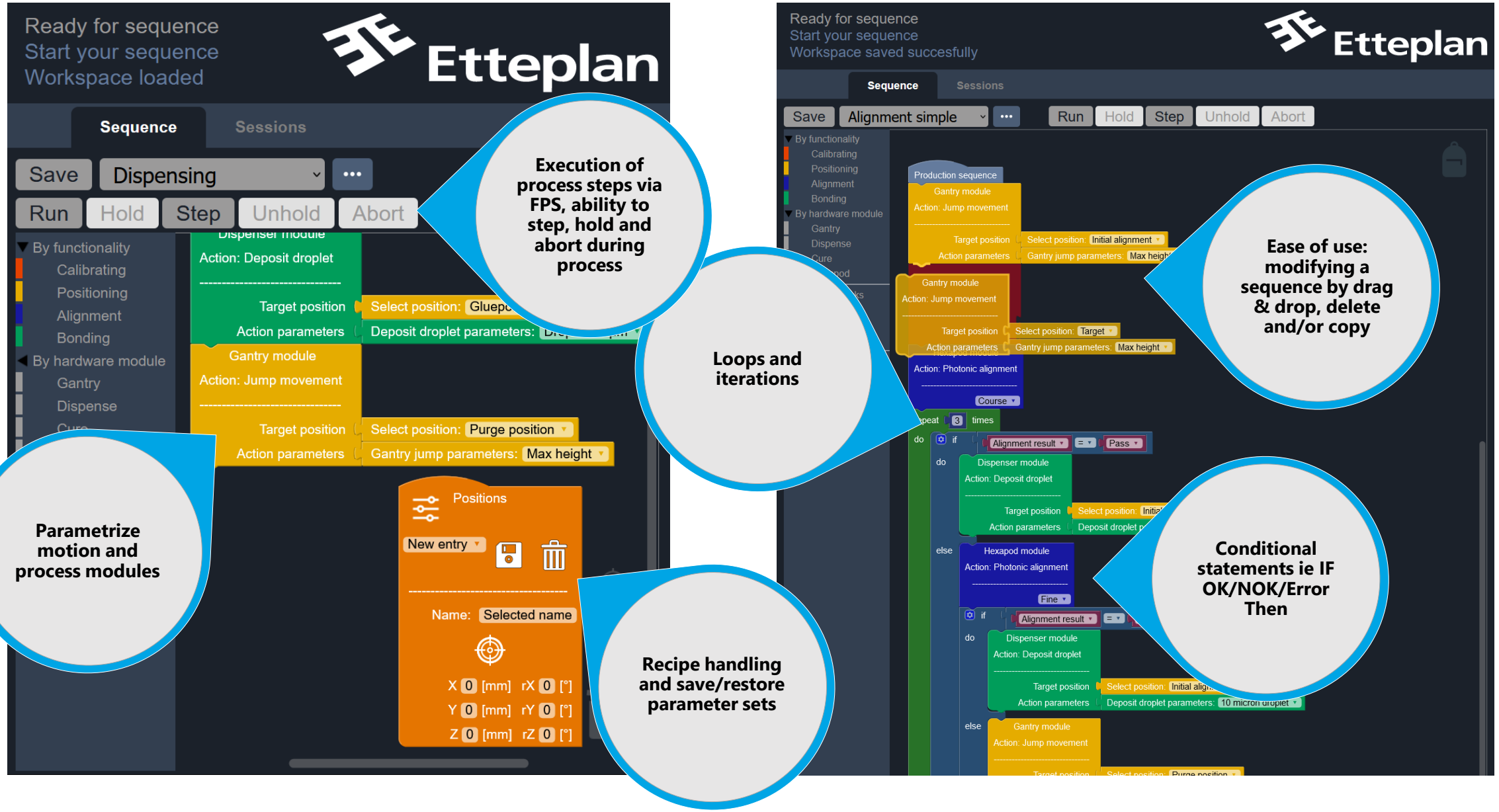
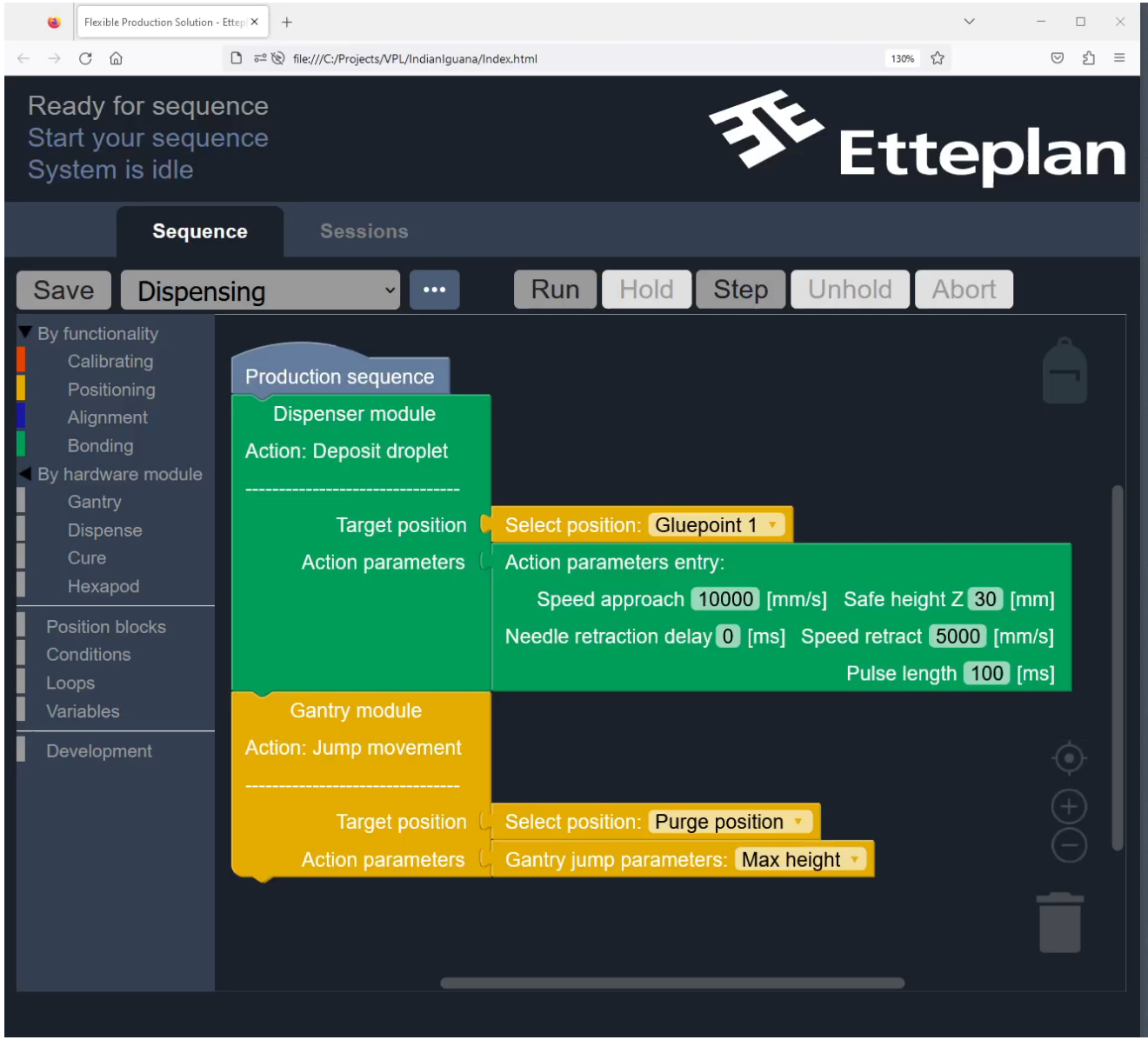
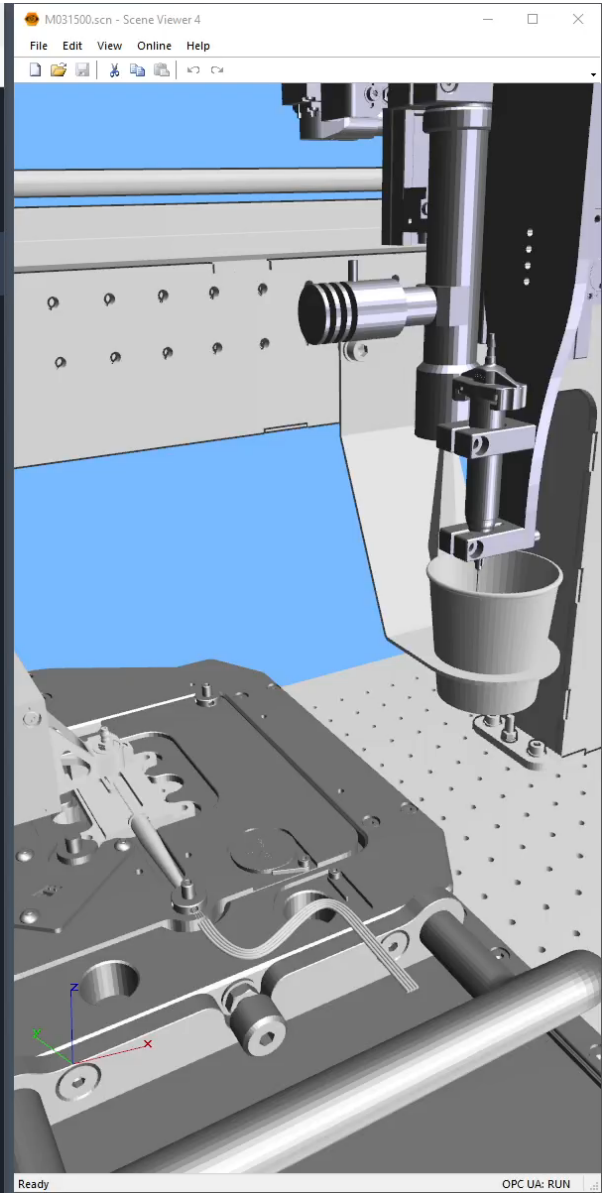


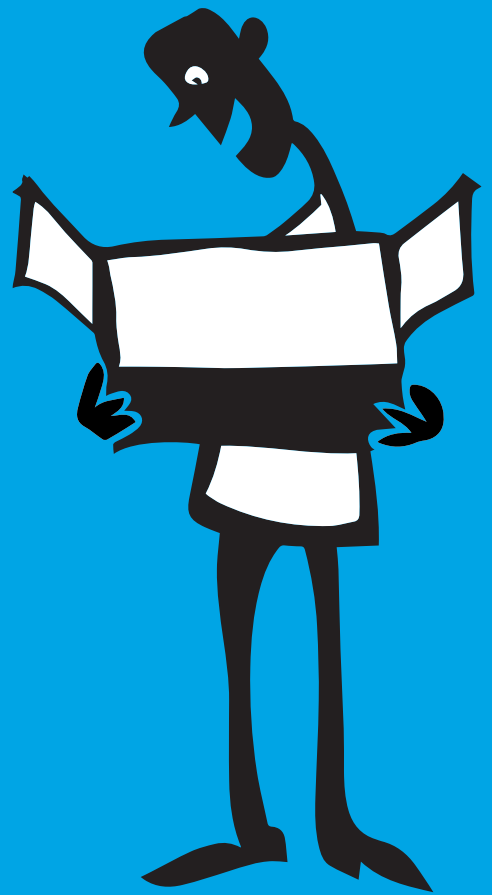
Key Features





Example of Gantry and Dispense configuration

Key benefits



Short changeover time

- 1 GUI for all modules
- No machine manufacturer required for changes
- Quick results on experiments for optimization

No programming

- Visual programming interface instead of scripting language/PLC/LabView environment.
- No need to search for a ‘needle in a haystack’ employee

Flexibility

- Add/change modules and configurations in the software by drag&drop
- Reuse of parameter sets/sequences
- Hardware almost plug & play

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End-users

Businesses that design and manufacture photonic components or systems:

- **Photonic OEMs**
  Startup to scale up
- **Research institutes or universities**
- **Foundries and contract manufacturers**
  mid/high MIX and low/med VOLUME

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Together we make light work

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Special thanks to our partners