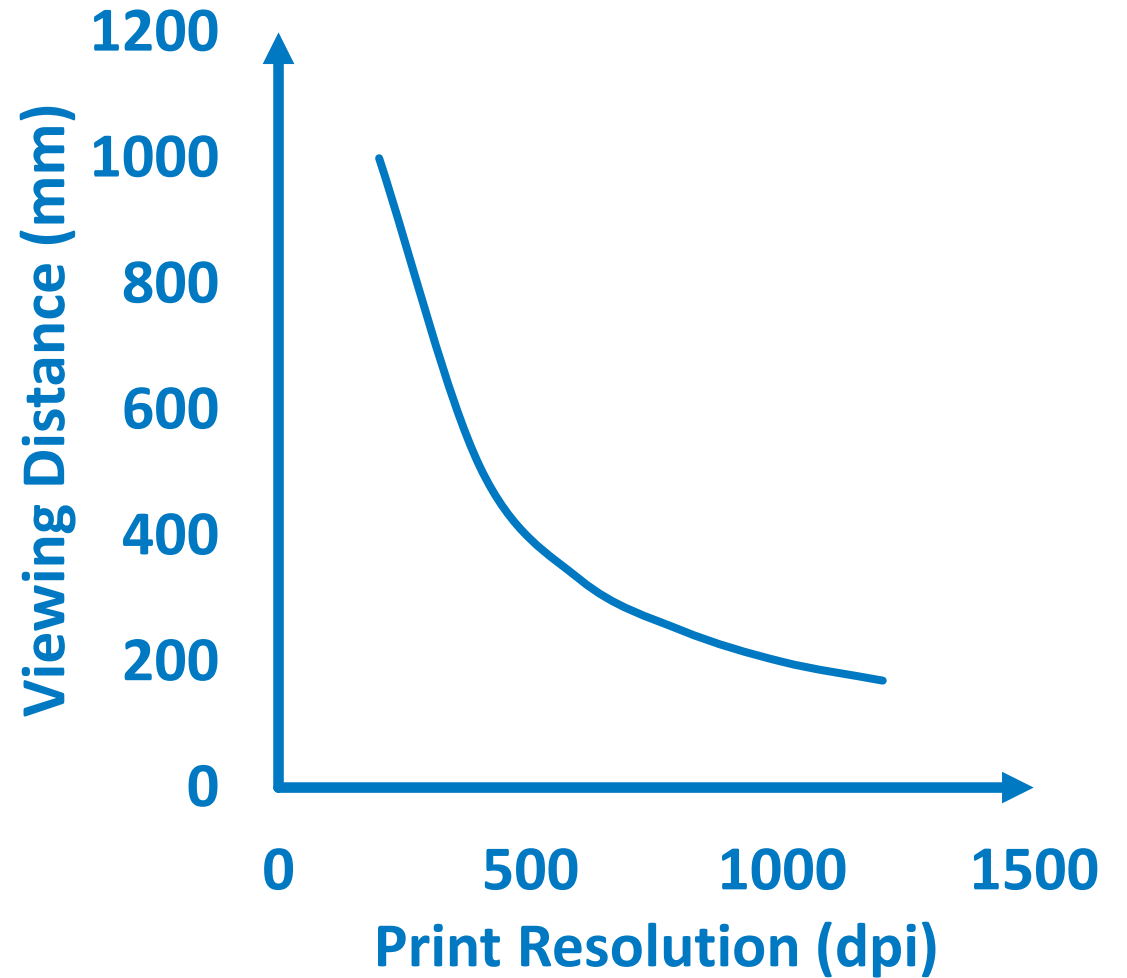


High Precision Inkjet Printing

Stephen Tunncliffe Wilson
Inca Digital Printers

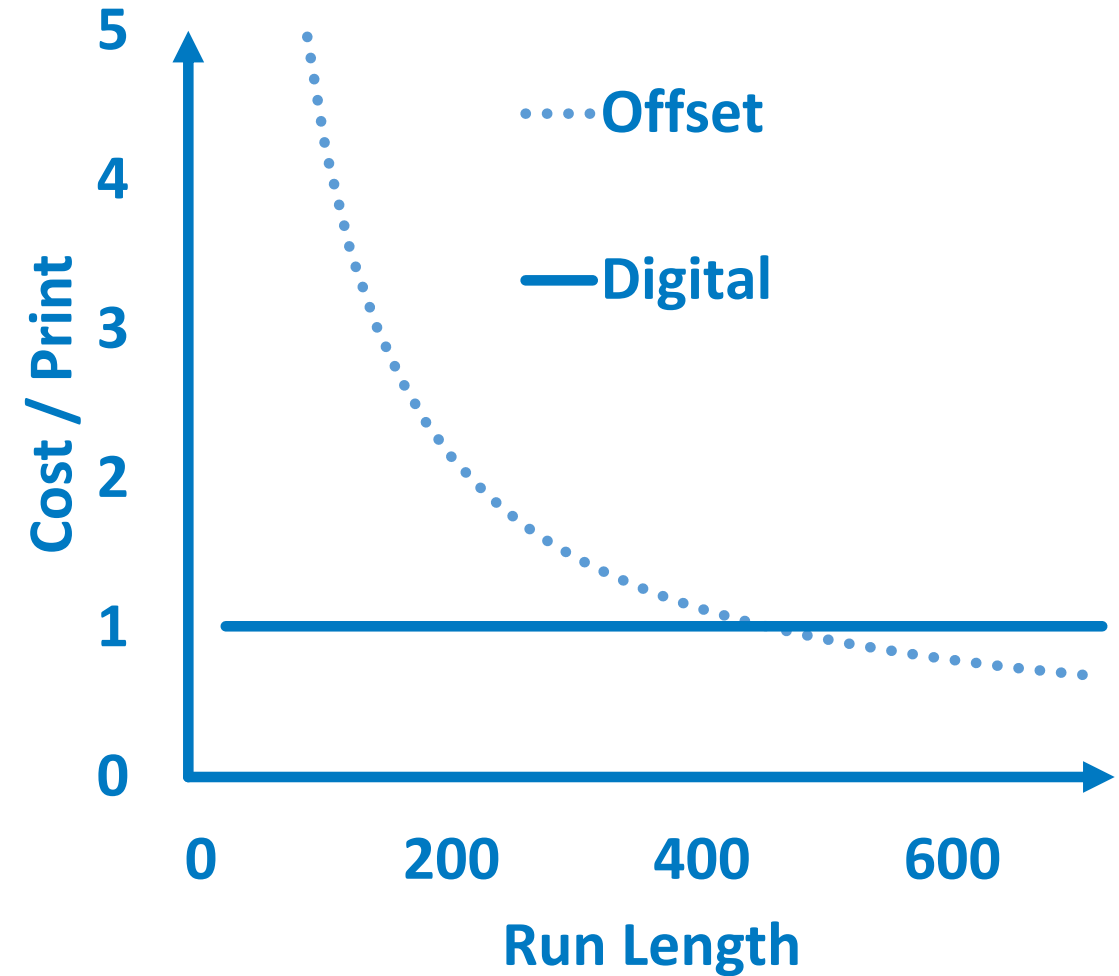
Packaging needs the *precision* of analogue printing..

- **High print resolution** for
 - Brand integrity
 - Short viewing distances
- **Accurate registration** for
 - Over-printing
 - Die-cutting



..but also wants the *flexibility* of inkjet:

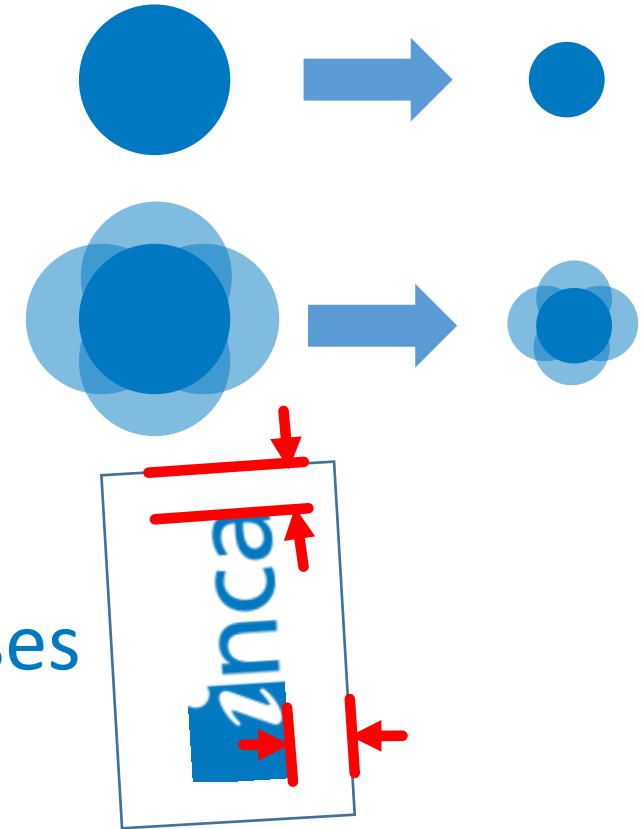
- **Cost effective** short runs
- **Variable data**
- **Language variations**
- **Regional pricing**



So can inkjet match the precision of analogue printing?

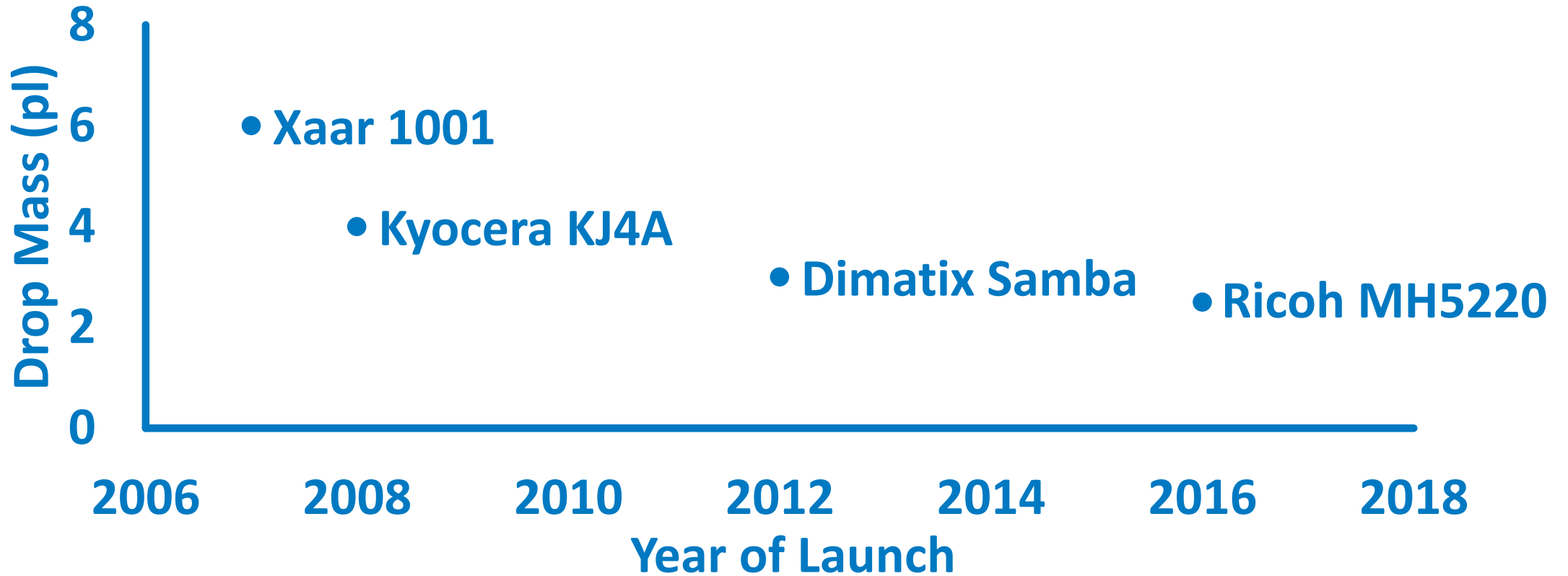
Precise inkjet printing requires..

- **Small drops** – for high print resolutions
- **Good Drop Placement** – for low graininess and small fonts
- **Accurate Registration** – for finishing processes



Are small drops enough for high precision..?

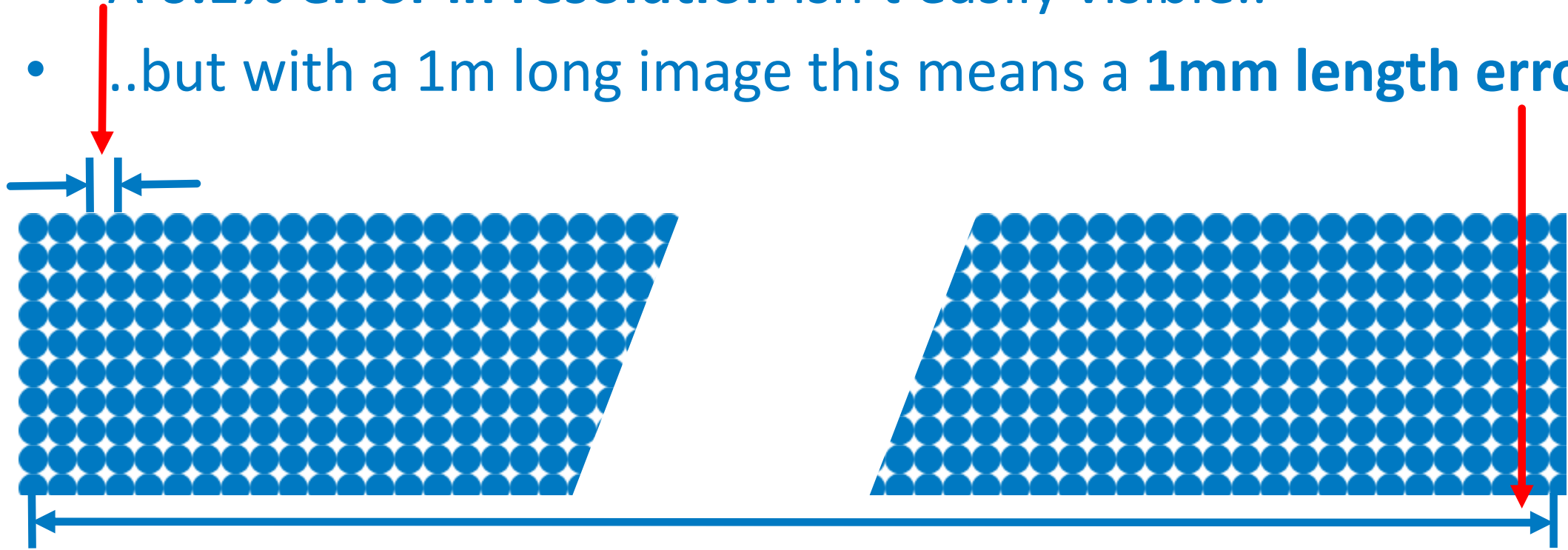
Inkjet drop sizes are decreasing..



..no, high resolution doesn't guarantee *high precision*

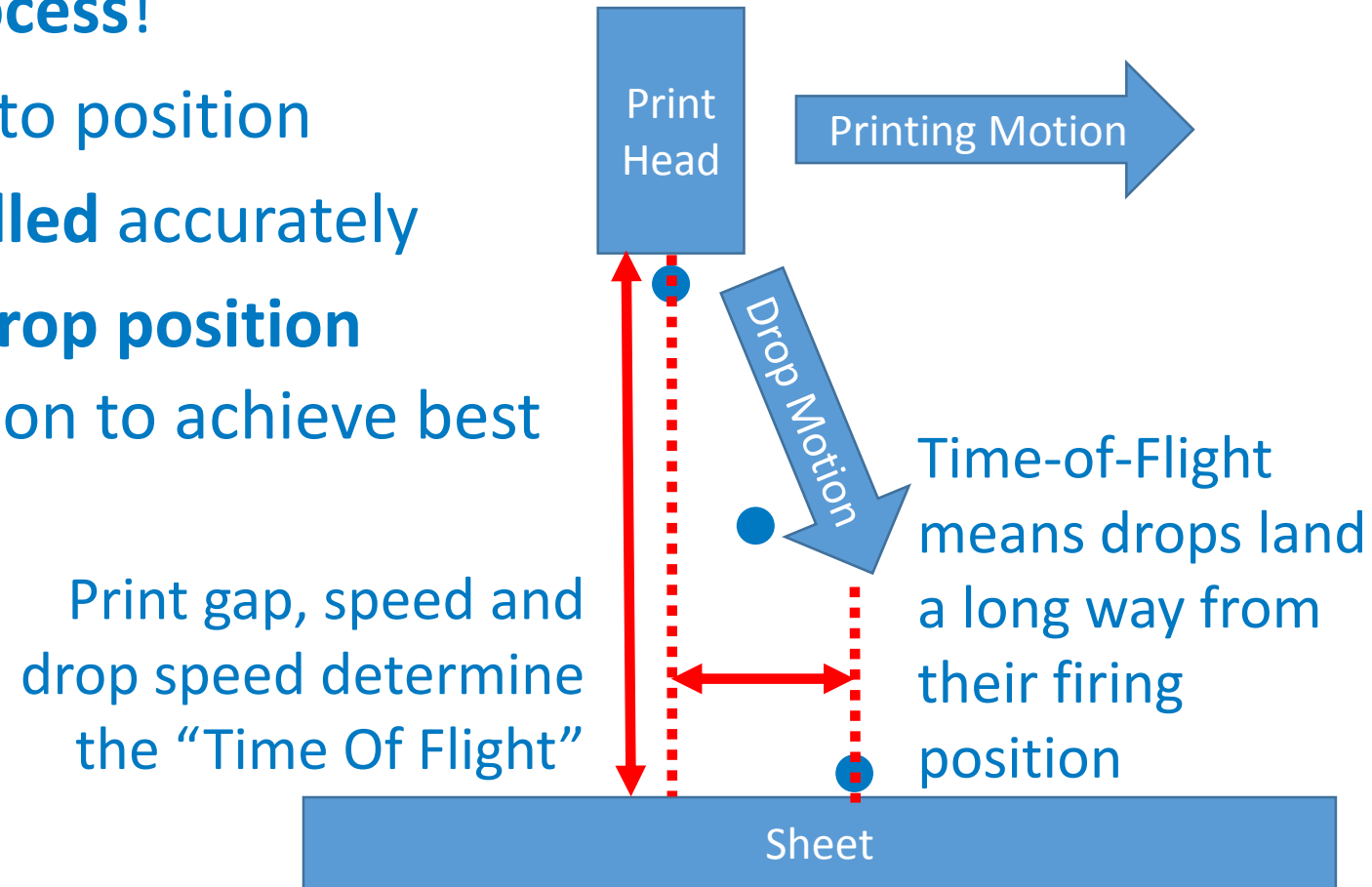
Resolution must be *accurate* - not just high

- A **0.1% error in resolution** isn't easily visible..
- ..but with a 1m long image this means a **1mm length error!**



Why is inkjet drop placement challenging?

- Inkjet is a **non contact process!**
- **Smaller drops are harder to position**
- **Print Gap must be controlled accurately**
- **“Time Of Flight” affects drop position**
- Need accurate calibration to achieve best print quality



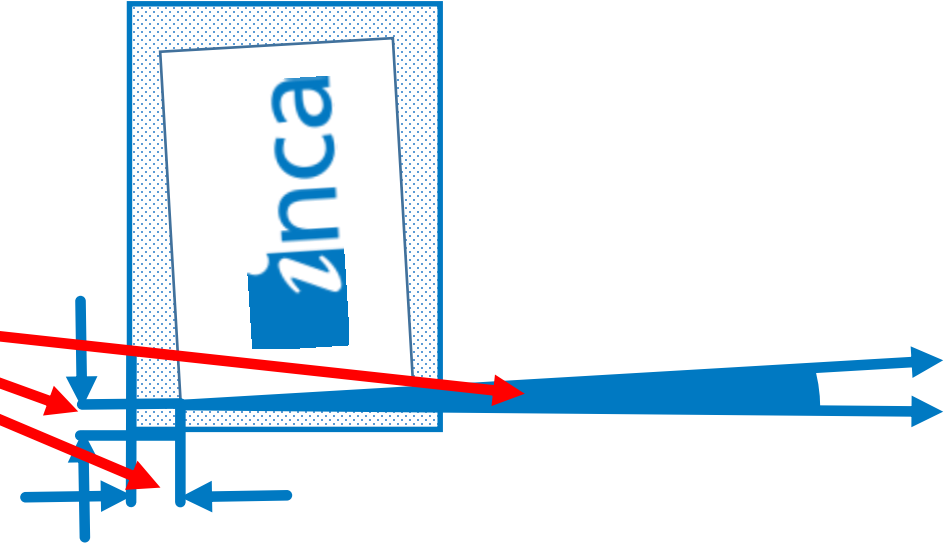
How can we achieve high precision registration?

1. Measure the sheet position

- Offset (X, Y)
- Angle (theta)

2. Correct the print position

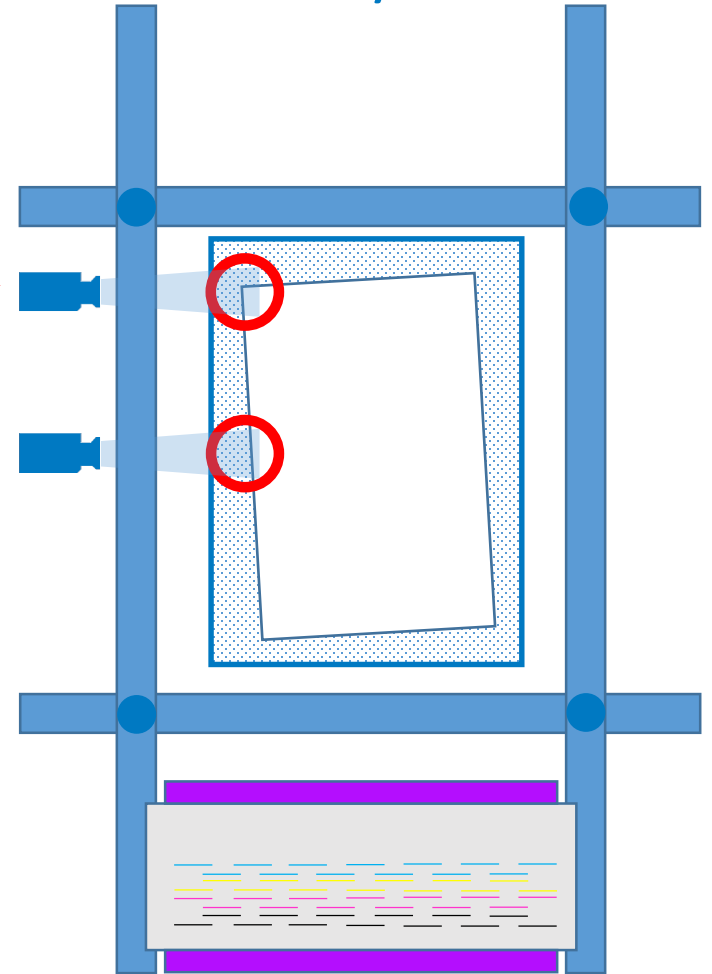
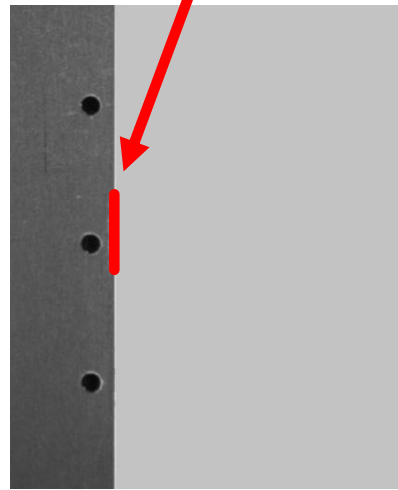
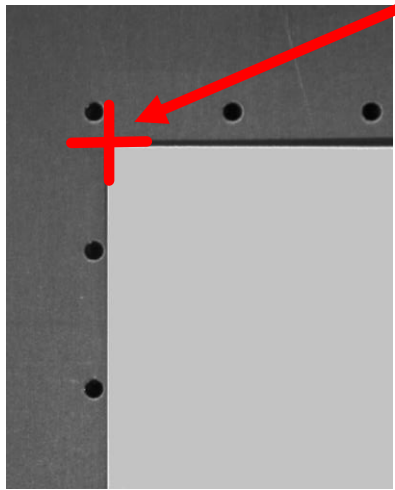
- Motion System
- Digital positioning



How can we measure the sheet position accurately?

The Inca *OnsetM* uses

- **Cameras** positioned over the sheet
- **Analysis** to find corners and edges

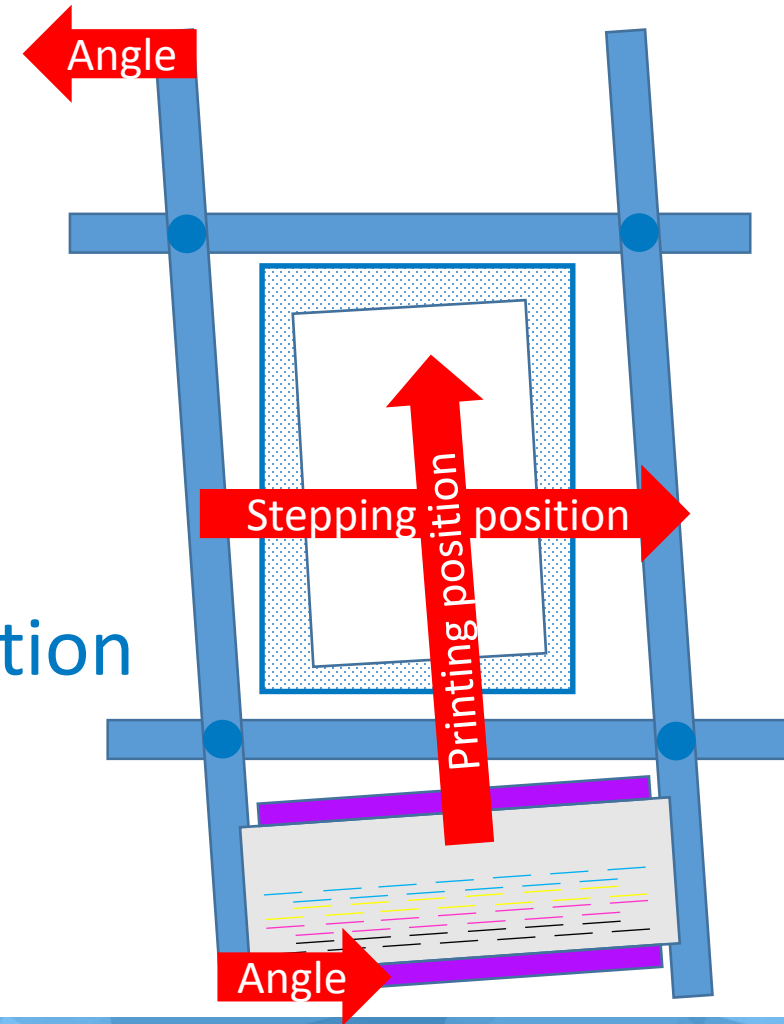


How do we **correct** the print position?

The *OnsetM* corrects the:

1. **Printing** position
2. **Stepping** position
3. **Print Angle**

..and prints the image in the corrected position



The Inca *OnsetM* – a platform for high precision inkjet printing

- ***Flexibility*** of inkjet with a variable data workflow
- ***Precision*** of accurate drop placement and camera registration

