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5 SUCCESS FACTORS FOR FAST PRODUCT DEVELOPMENT

Computex 2025

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INTRODUCTION

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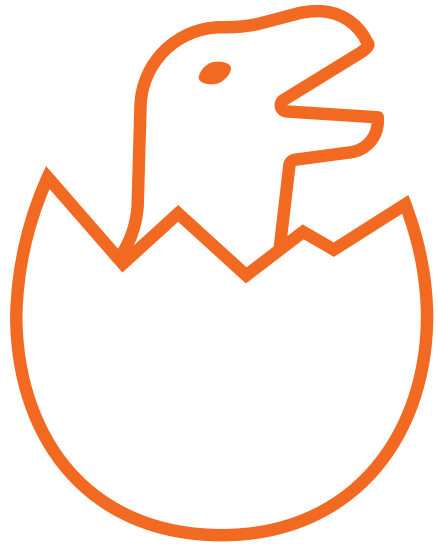
FAST CONCEPT TO PRODUCTION

why

Today economics requires **fast product development**.

It is not about who is the **biggest**, it is about who can **adapt the fastest** to changes.

You need to be **agile**, but how to develop fast and still be **in control**?



5 success factors for fast product development

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1: A METHOD

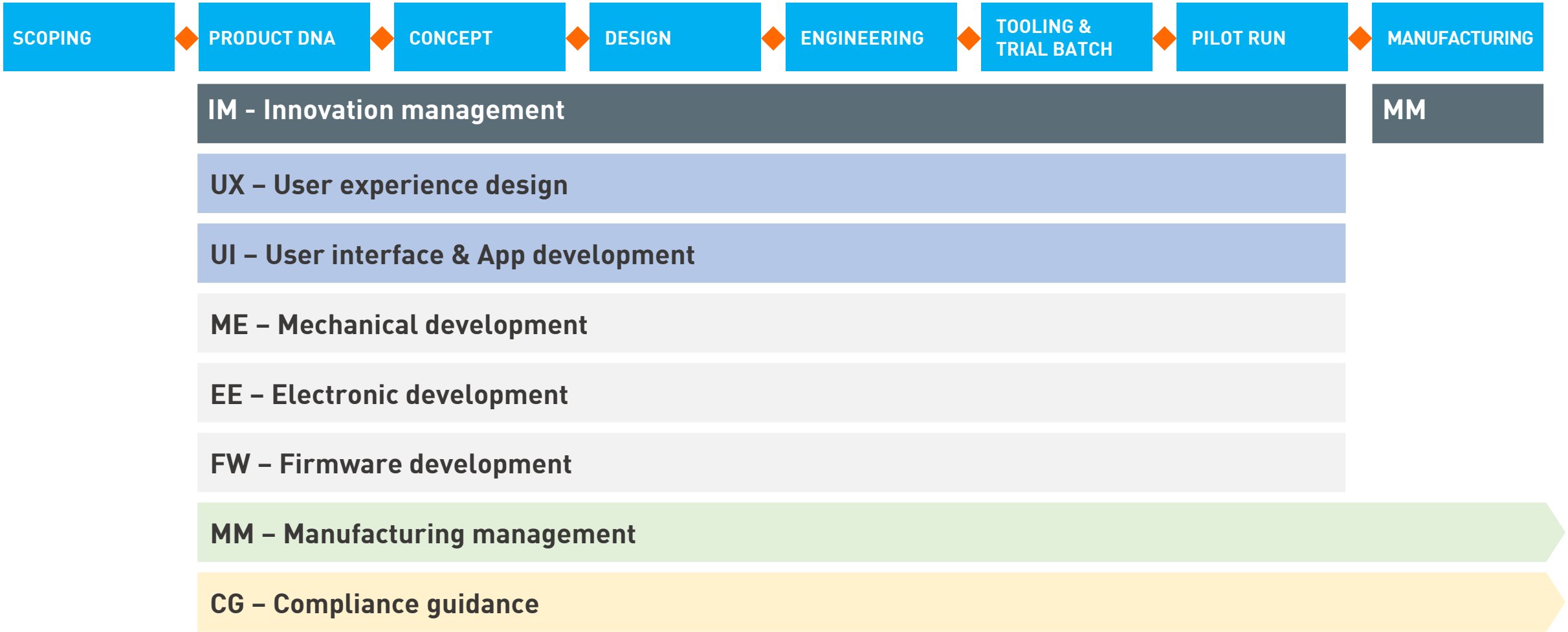
No need to choose between agile and waterfall.

Pilotfish uses an **agile - waterfall** product development method. Key elements:

- **Parallel** workstream and **decouples tasks**
- Manageable blocks
- **Agile**
- **Checks** of deliverables at the gates

1: A METHOD

- Work in parallel workstream and **decouples tasks**



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1: A METHOD

- Break down in manageable blocks

SCOPING	PRODUCT DNA	CONCEPT	DESIGN	ENGINEERING	TOOLING & TRIAL BATCH	PILOT RUN	MANUFACTURING
Product & project plan	Product definition & Product architecture	Proof of concepts	EVT	DVT	DFM, Tools, golden samples	PVT	Production
	• Conceptual architecture	• User Experience concepts	• UXD, ID & Human factors design	• CMF, Artwork		• Pilotrun samples	
	• Visual concepts	• UI structure	• User interface design	• Coding	• User test		
	• Physical architecture	• Physical working principles	• Mechanical design	• Mechanical engineering	• DFM & Tools • SOP		
	• Electronic architecture	• Block diagram	• Electronic design (schematic / layout)	• Electronic engineering	• Test JIG • SOP		
	• Firmware architecture	• Flow charts	• Firmware design	• Firmware engineering	• Flashing JIG • SOP		
	• Manufacturing strategy	• Critical components and manufacturing	• Sourcing • EVT check	• Sourcing • DVT check	• DFM review • SIP • Check Sample		• Mass production
	• Compliance identification	• Compliance plan	• Pre-compliance 1	• Pre-compliance 2	• Final product compliance		• Maintenace

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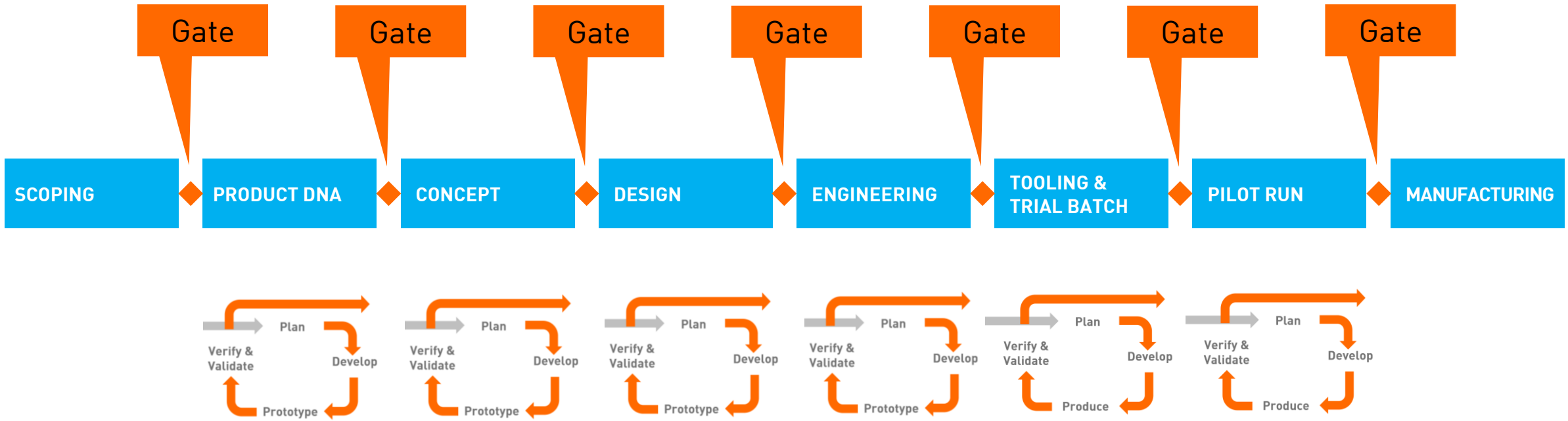
1: A METHOD

- Work **agile** in combination with **waterfall** method



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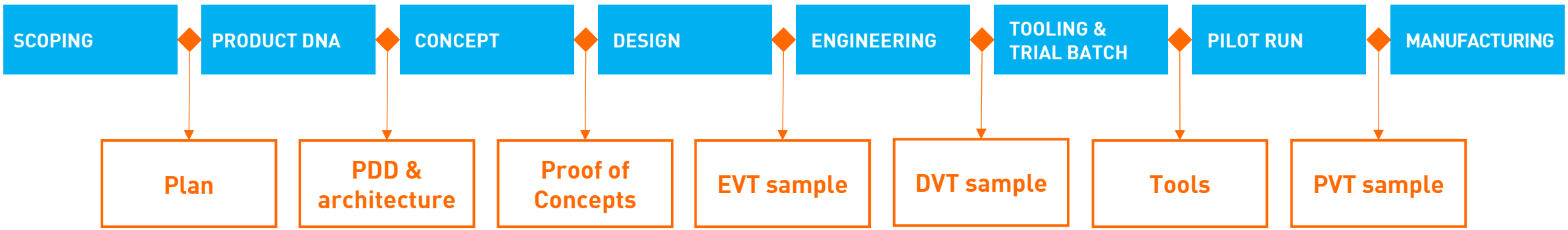
1: A METHOD

- Check deliverables at the gates



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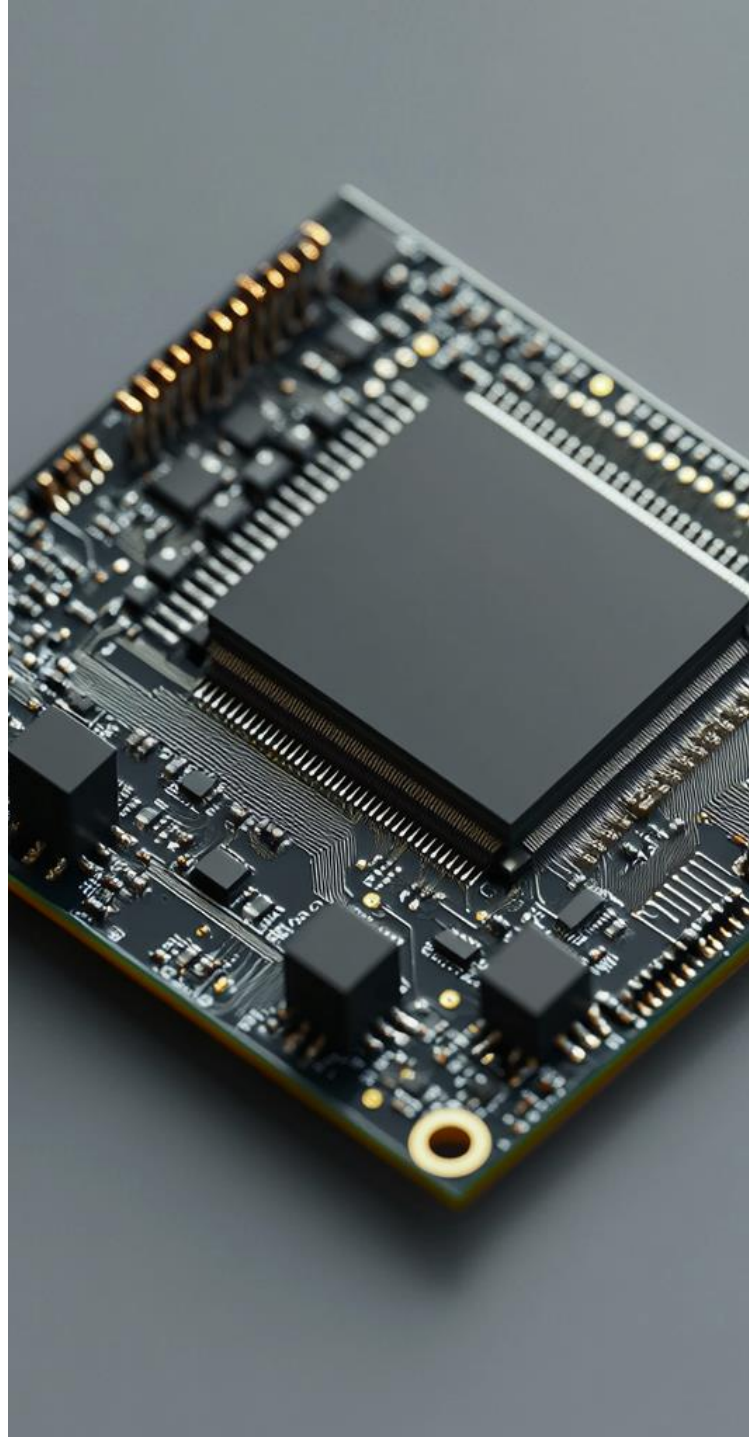
2: EARLY DFM

- **D**esign **f**or **M**anufacturing (DFM) from day one, concurrent with design and engineer to avoid **costly rework** later.
- **Risk management** during development together with manufacturing team to identify and mitigate blockers early. Encourage team to speak openly about risks
- Estimate the **cost price**

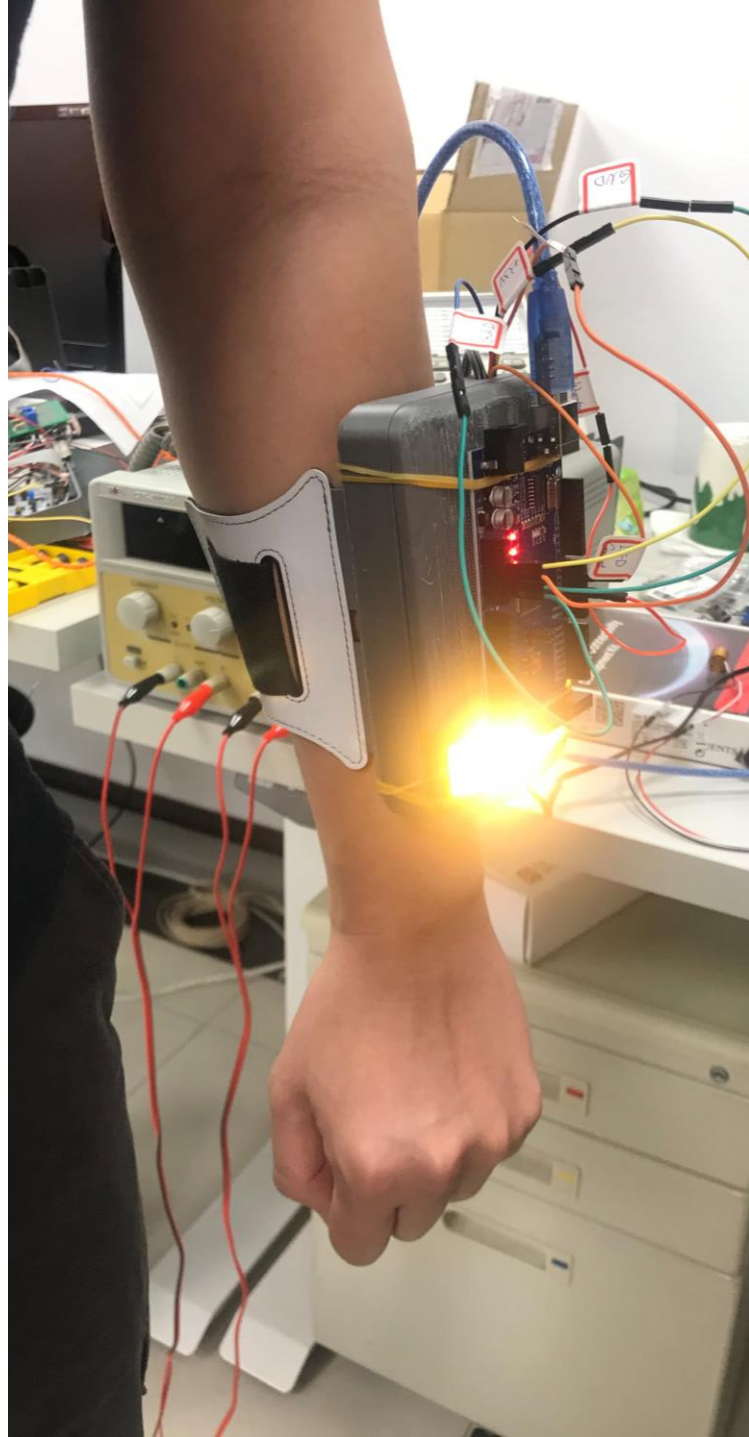
3: COMPONENT SELECTION

- Use off-the-shelf components where possible
- Review availability: Choose components with **low MOQ**, MPQ, in stock or reasonable lead-times
- Consider **substitution** of components
- Check **EOL** (end-of-life), but neither use the latest chips
- Use **Pre-certified** modules, to speed up compliance



4: EARLY TESTING

- Test technology, **user** and **market**
- **Test MVP's early** with customers, even if they're ugly or fragile.
- Use **simulation** (thermal, mechanical stress) early to reduce physical prototyping cycles and solve issues even faster
- Preform **pre-compliance** tests for EMI and ESD during design using EVT and DVT samples.



5: FAST TOOLING

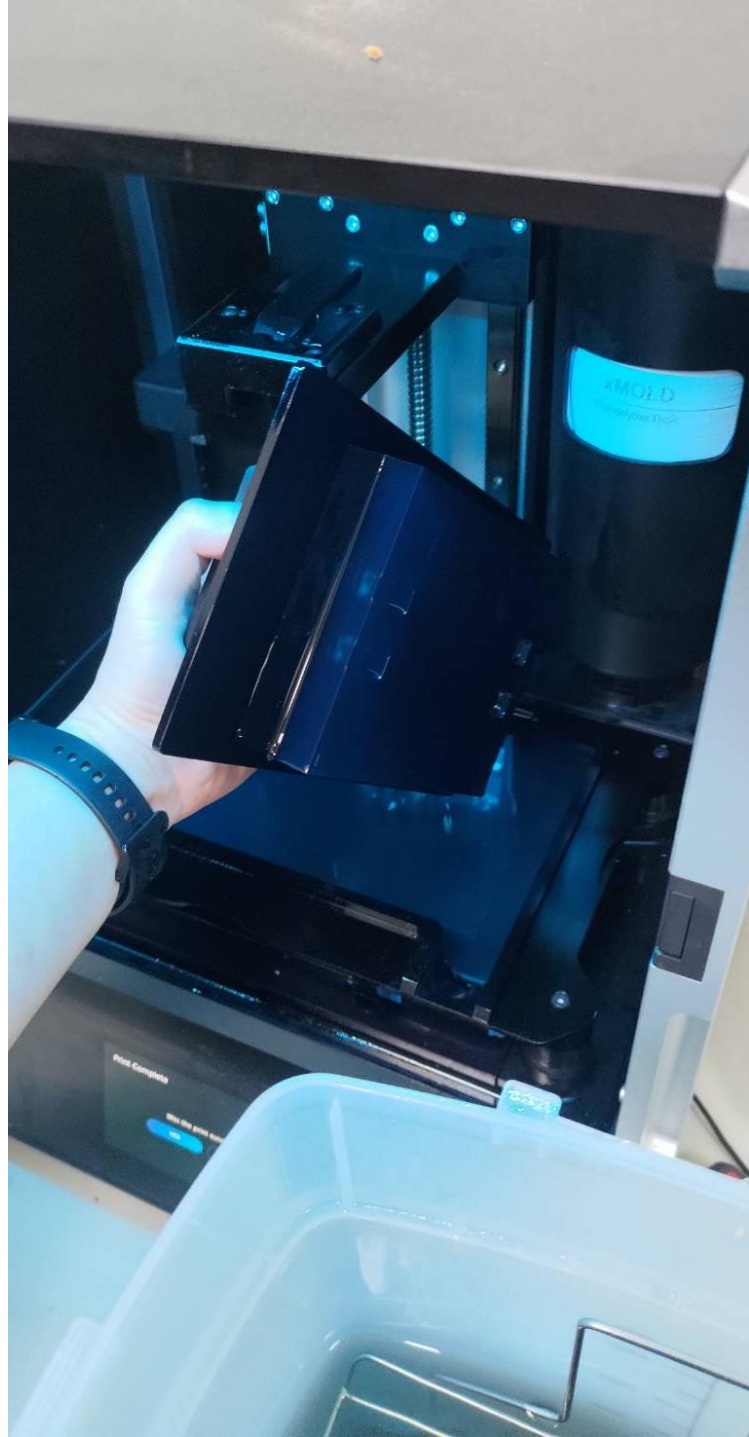
What is

Traditional tools for plastic injection molding.

- Made by steel
- High investment
- Long lead-time to build

Pilotfish deploys additive manufacturing to build tools.

No more cutting steel but fast **3D printing.**



5: FAST TOOLING

Why and when

- Continue using 3D printing and CNC milling for basic testing, even the mechanical properties are different.
- Use **fast tooling** to make **real plastic** parts by injection molding, in the final selected plastic because of:
  - biocompatibility
  - compliance
  - material properties: e.g. live hinge in PP
  - accelerated life cycle testing.

5: FAST TOOLING

Key advantages

- Make **real plastics** part: PP, PC, ABS, ABSPC, POM
- Fast: **2 weeks** instead of 6~8 weeks
- Much **lower cost**: 80% cost reduction

5: FAST TOOLING

What is feasible

- Currently up to 140 mm x 85 mm, and scaling up
- Undercuts possible using angle lifts
- Part thickness from 1mm.
- Texture as printed
- Draft angles need +7°
- No sharp edges
- Tool life cycle 50 ~ 80 cycles depending on design and material

5 SUCCESS FACTORS

for fast product development

pf 25 years of dreams realized

1. Work in parallel and agile towards deliverables.
2. DFM as integrated part of the development process
3. Select your components wisely
4. Build prototypes and test product and market
5. Fast tooling is offering opportunities for
    1. testing with real plastic part, and
    2. small series at a fraction of cost and lead time.

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THANK YOU

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