OPTICS

EPIC Meeting on Photonics for AR/VR/MR

From Design to System Integration and Mass Production at Jabil Optics

JABIL

Simon Schwinger | May 11, 2023 | simon_schwinger@jabil.com

Augmented Reality is exciting.

I do think that a significant portion of the population of developed countries, and eventually all countries, will have AR experiences every day, almost like eating three meals a day. It will become that much a part of you.

T. Cook
Oct.2016

Our hope is that within the next decade, the metaverse will reach a billion people, host hundreds of billions of dollars of digital commerce, and support jobs for millions of creators and developers.

M. Zuckerberg
Oct. 28, 2021

The next phase of mobile technology will be dominated by smart glasses.

Smart glasses from the likes of Amazon, Meta, and Snap will complement and then replace smartphones.

Quartz
Sept.2022

The latest Wall Street estimate for the metaverse is that it could be a $13 trillion market.

MarketWatch
March 2022

Augmented Reality is frightening.

Mark Zuckerberg calls hardest technical chall

The Facebook CEO said the potential for the can fit a supercomputer onto a pair of glasse

Written by **Stephanie Condon,** Senior Writer c

Smart Glasses: What Wer Are We Now Ready?

Smart glasses didn't initially make it too far, but are

BY **STEFAN IONESCU** PUBLISHED SEP 26, 2021

Opinion: A $3 trillion loss: Big Tech's horrible year is getting worse

Last Updated: Oct. 31, 2022 at 8:10 a.m. ET
First Published: Oct. 28, 2022 at 3:30 p.m. ET

By Therese Poletti (Follow) and Emily Bary (Follow)

Apple, Amazon, Alphabet, Meta and Microsoft are set to shed a combined $255 billion in ma cap this week

Meta announced another 10,000 layoffs as part of its "year of efficiency"

Quartz • Published March 14, 2023

Google Has Killed Its AR Glasses (Again)

Share

Zachariah Kelly
Published 2 months ago: March 17, 2023 at 10:40 am - Filed to: AUSTRALIA

Image: Google

rg's augmented

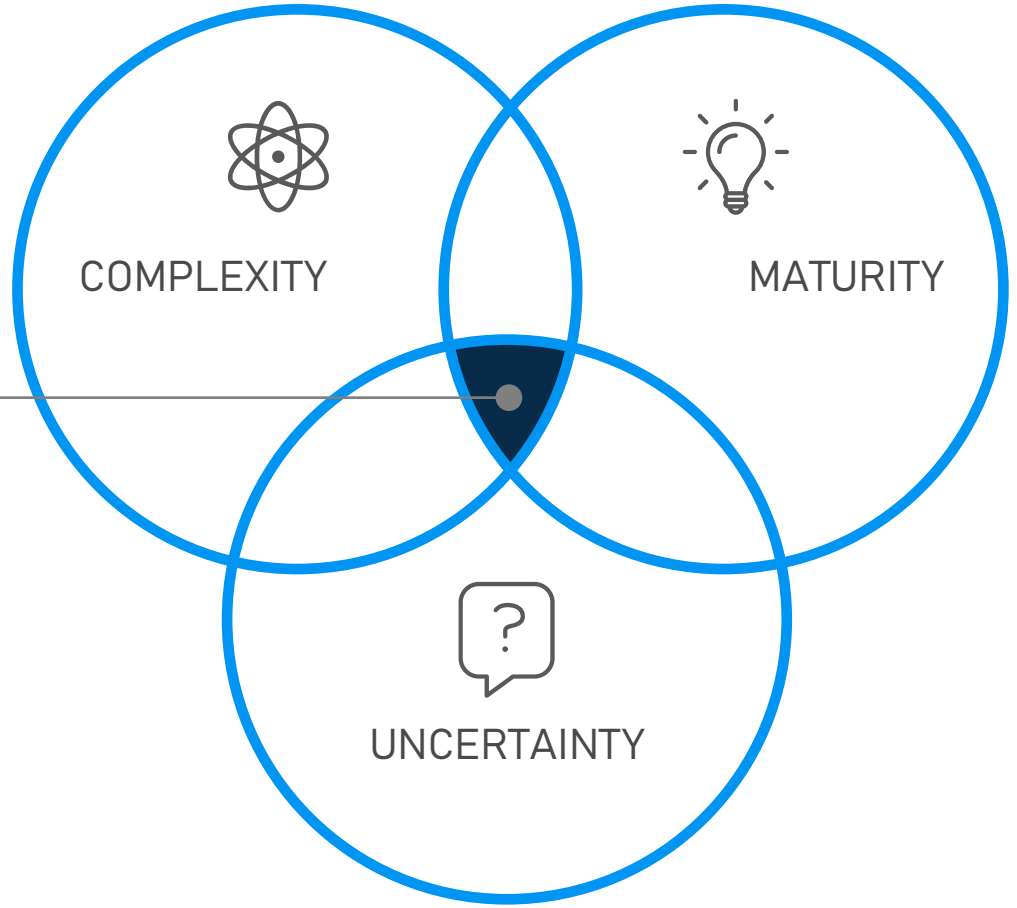
AR glasses in 2024, but sources hem to become mainstream

Apr 13, 2022, 5:00 PM GMT+2 | 0 Comments / 0 New

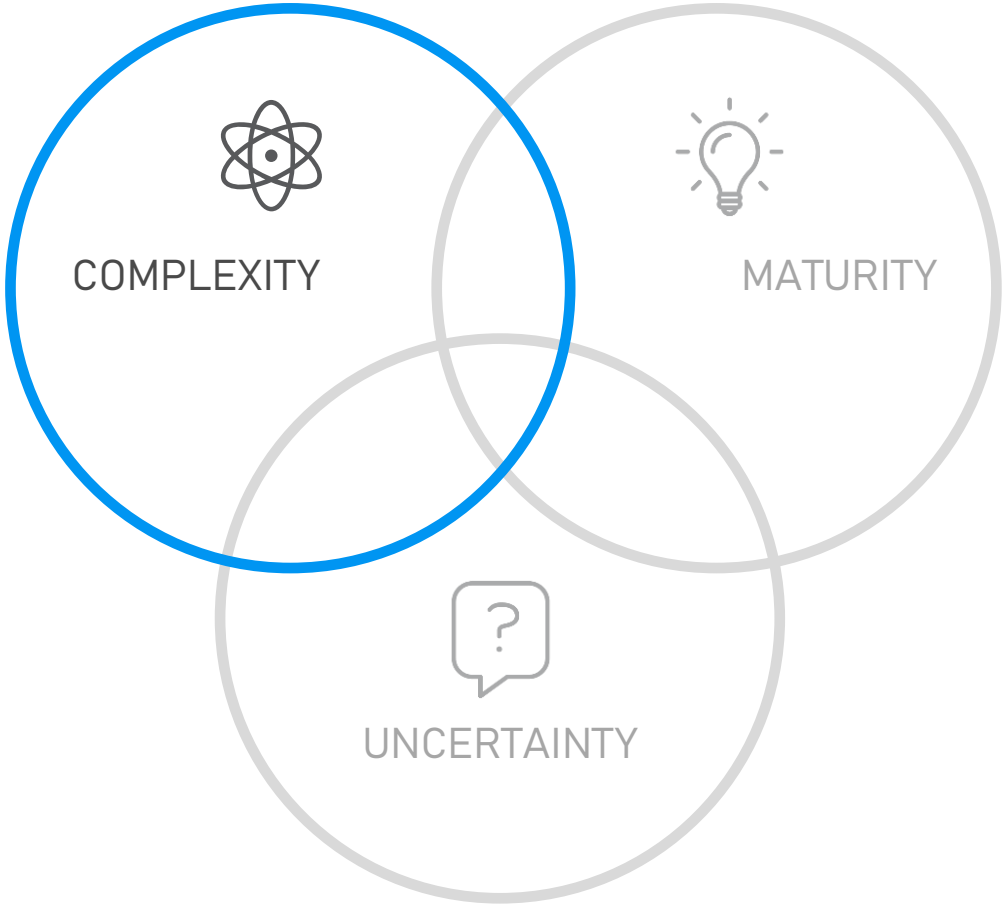
What‘s manufacturing all about?

A Triade to Balance

In order to successfully transfer a design into mass production, 3 elements are worth balancing.

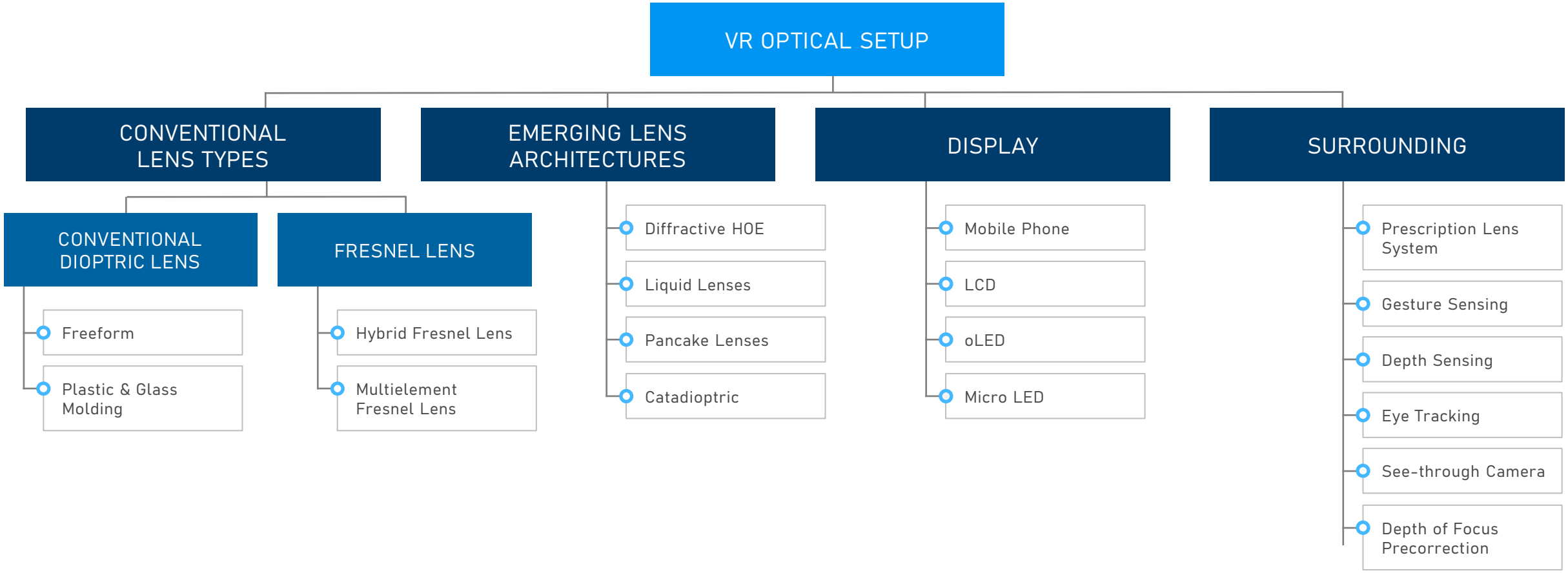


Successfully Controlling Complexity



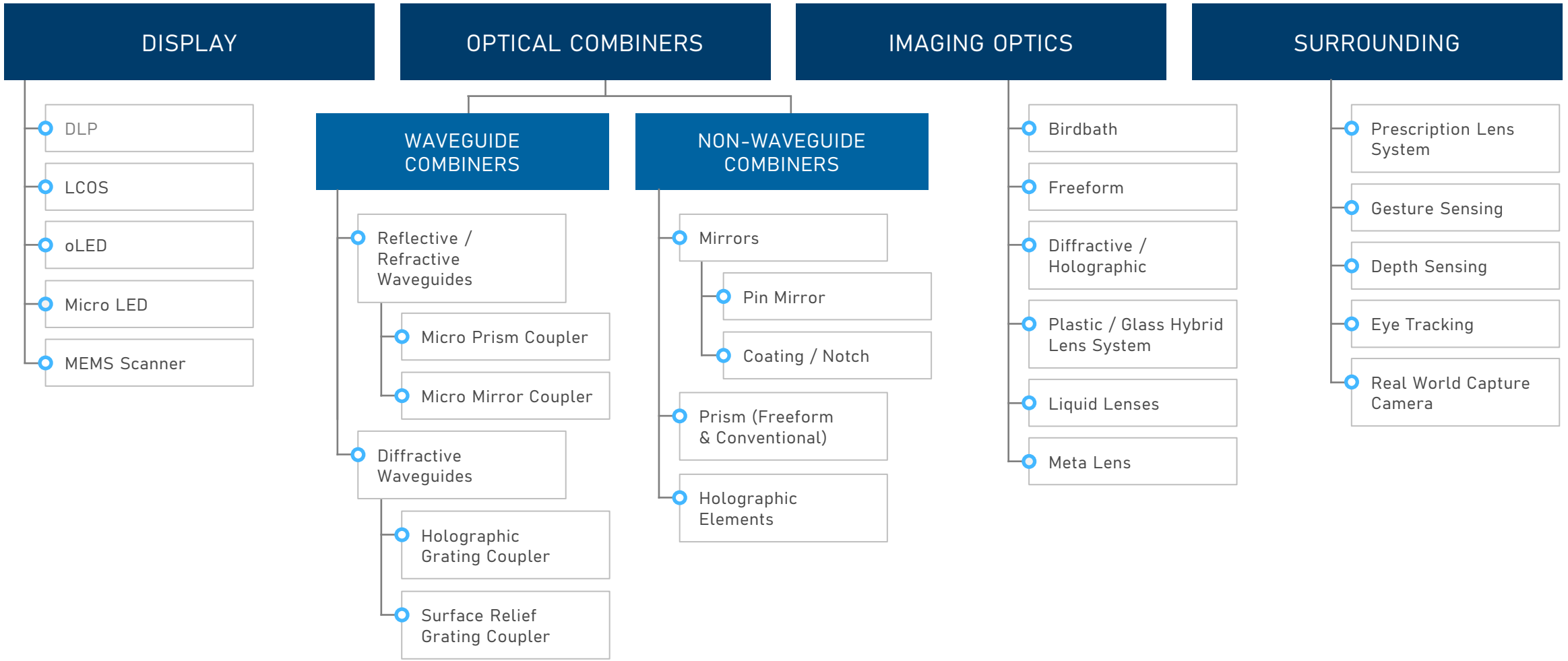
VR Glasses

Our Optical Design Competencies



AR Glasses

Our Optical Design Competencies



Successfully Controlling Complexity

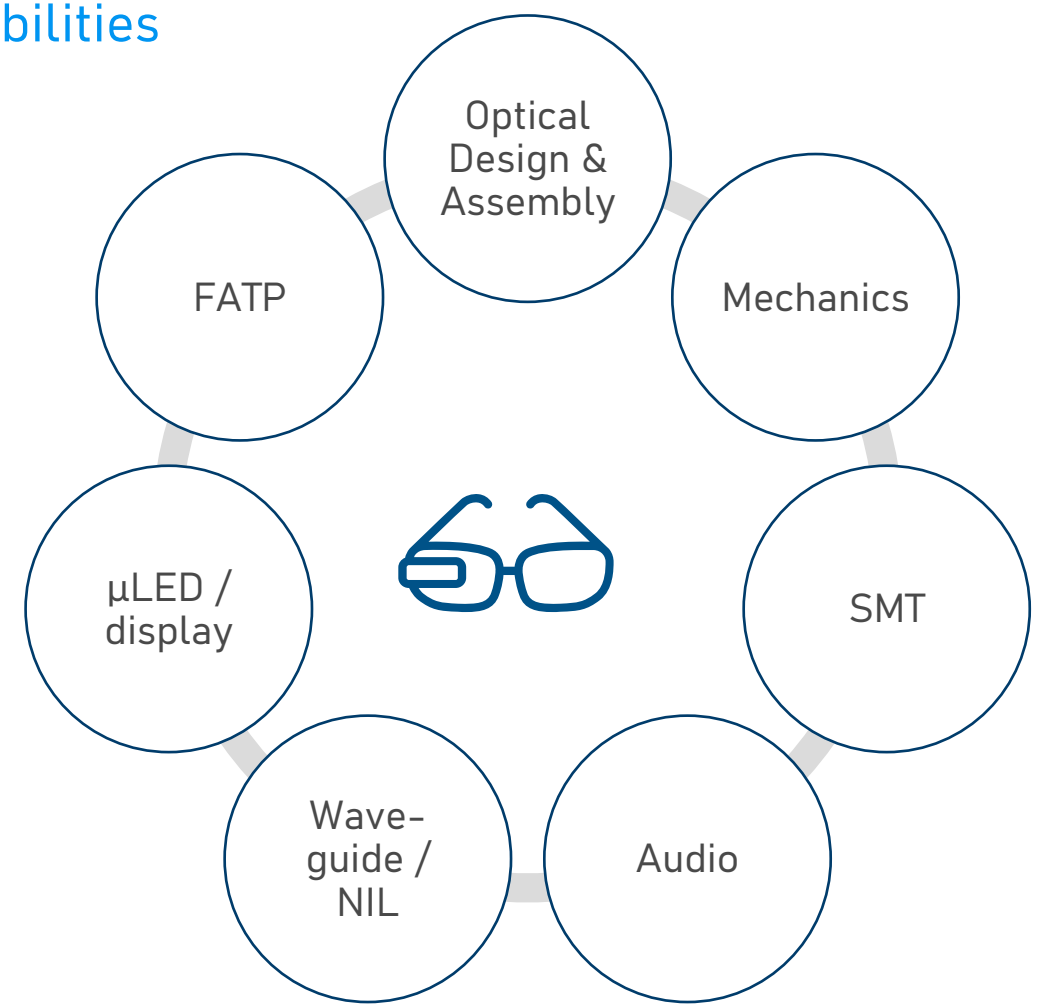
Required Solution: Vertical Integration of Essential Capabilities

COMPLEX, TECHNOLOGY-SPECIFIC CHALLENGES

- **Variety of technologies** with innumerous parameters
- **Parallel design** of key components and product
- Highest level of **flexibility** required in a **highly structured** mass production environment
- Many **interfaces** impact design path (market, regulations, supply chain, macro economics)

BESIDES TECHNOLOGY…

- ~90 % of all start-ups die not because of limited funding
- In most cases they die when their idea does not become a real product that is **manufacturable** and has the potential to **scale fast**.



Successfully Controlling Complexity

Design Services

- Optical
- Mechanical
- Electrical

Engineering Services

- Manufacturing
- Verification
- Test

Process Development

- Precision Alignment (Active / Passive)
- SMT, COB, FATP
- Joining Techn., e.g. adhesives, welding

Test System Development

Prototyping / NPI

- Low-volume / high-mix

Assembly & Test

Quality Management

Sustaining Support

Supply Chain Management

Miniaturization

Performance Enhancements

Industry-crossing Know-How

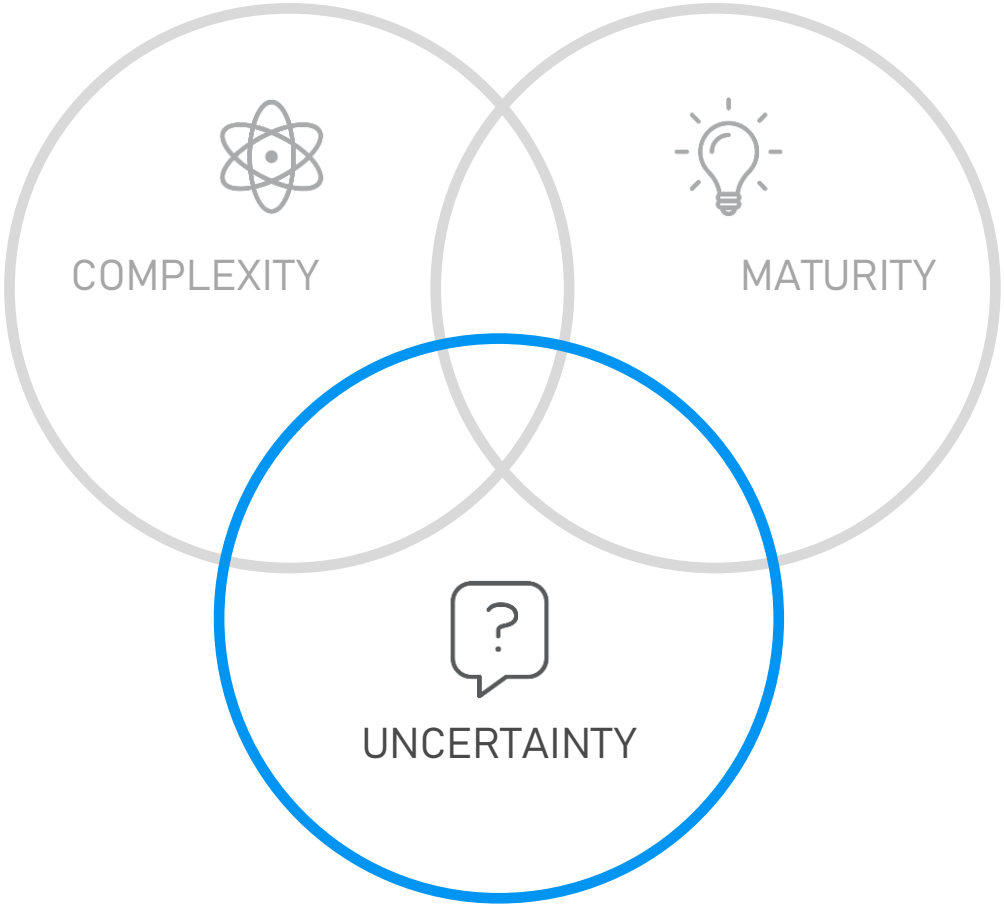
Prototyping & Scalable Production

Accelerated Time-to-Market

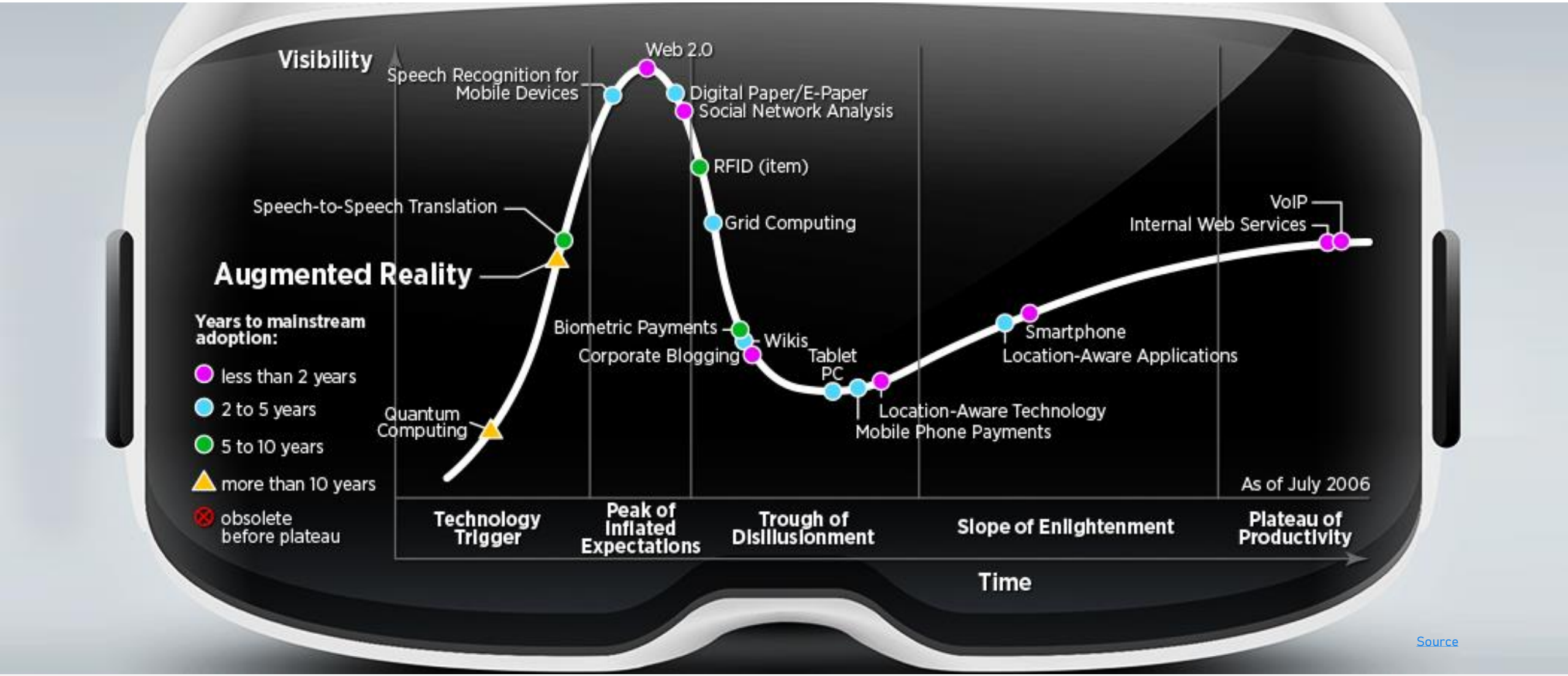
Cost Optimization

Accuracy & Reliability Improvement

Successful Management of Uncertainty



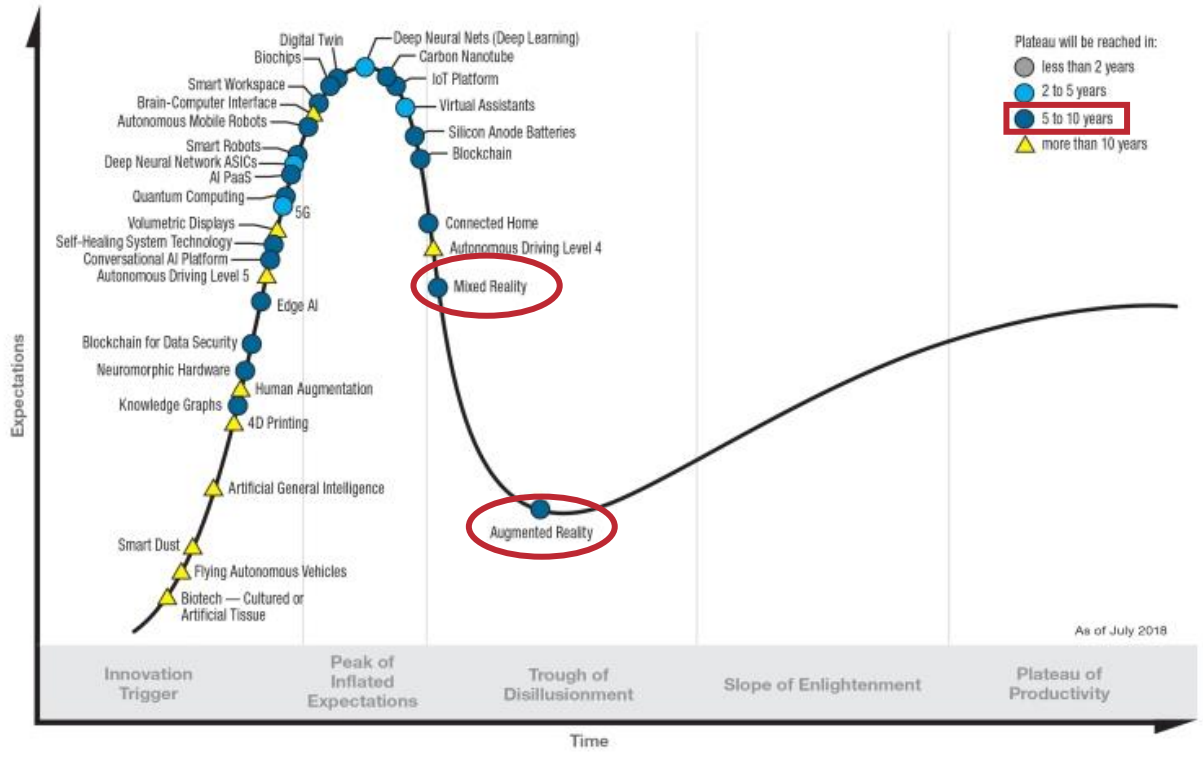
Successful Management of Uncertainty



Source

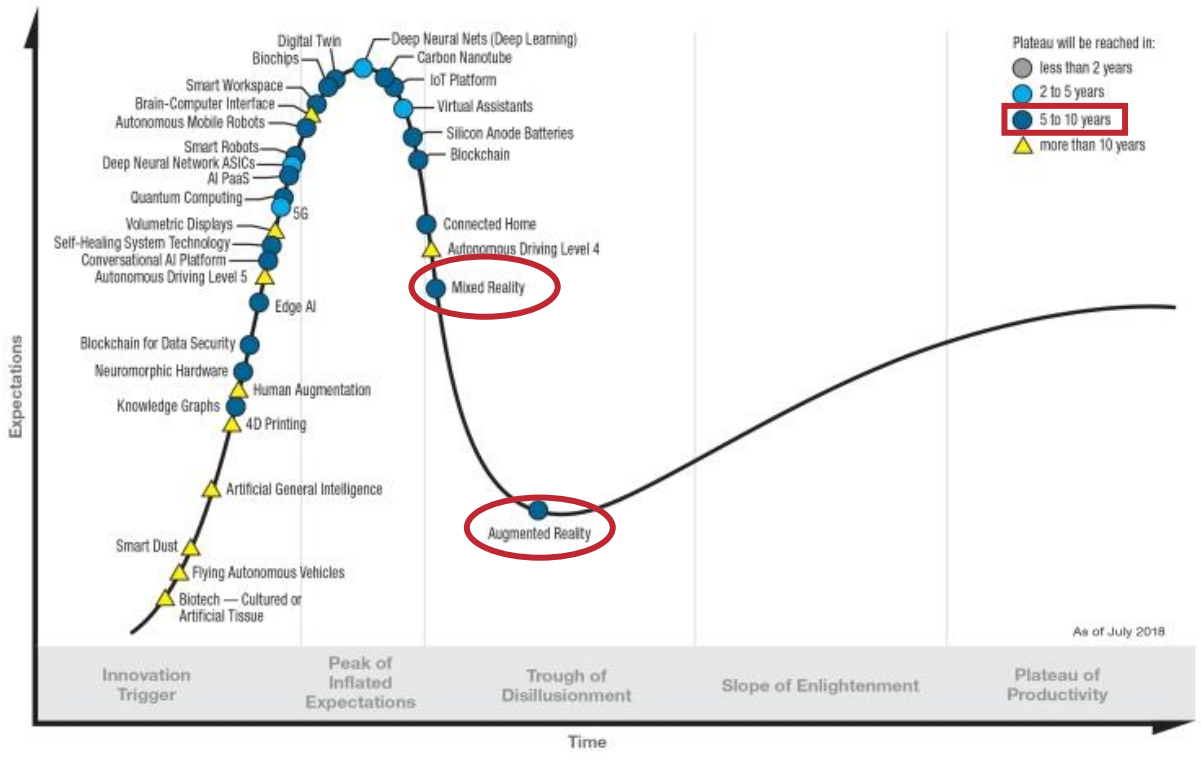
Successful Management of Uncertainty

2018

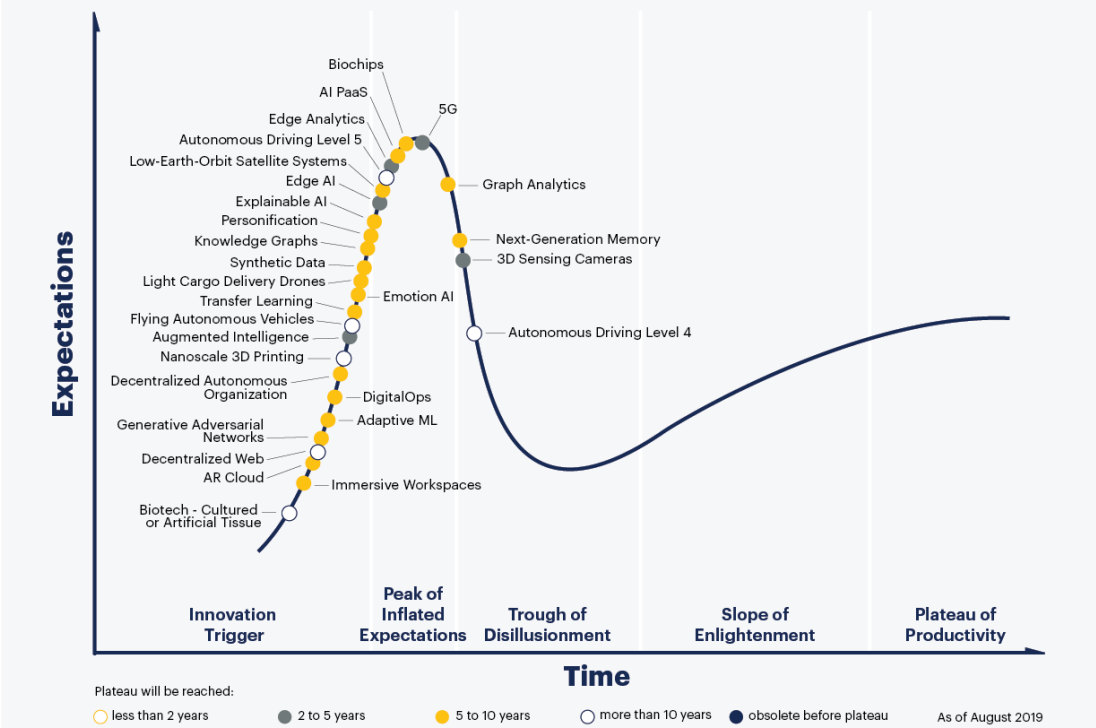


Successful Management of Uncertainty

2018



2019



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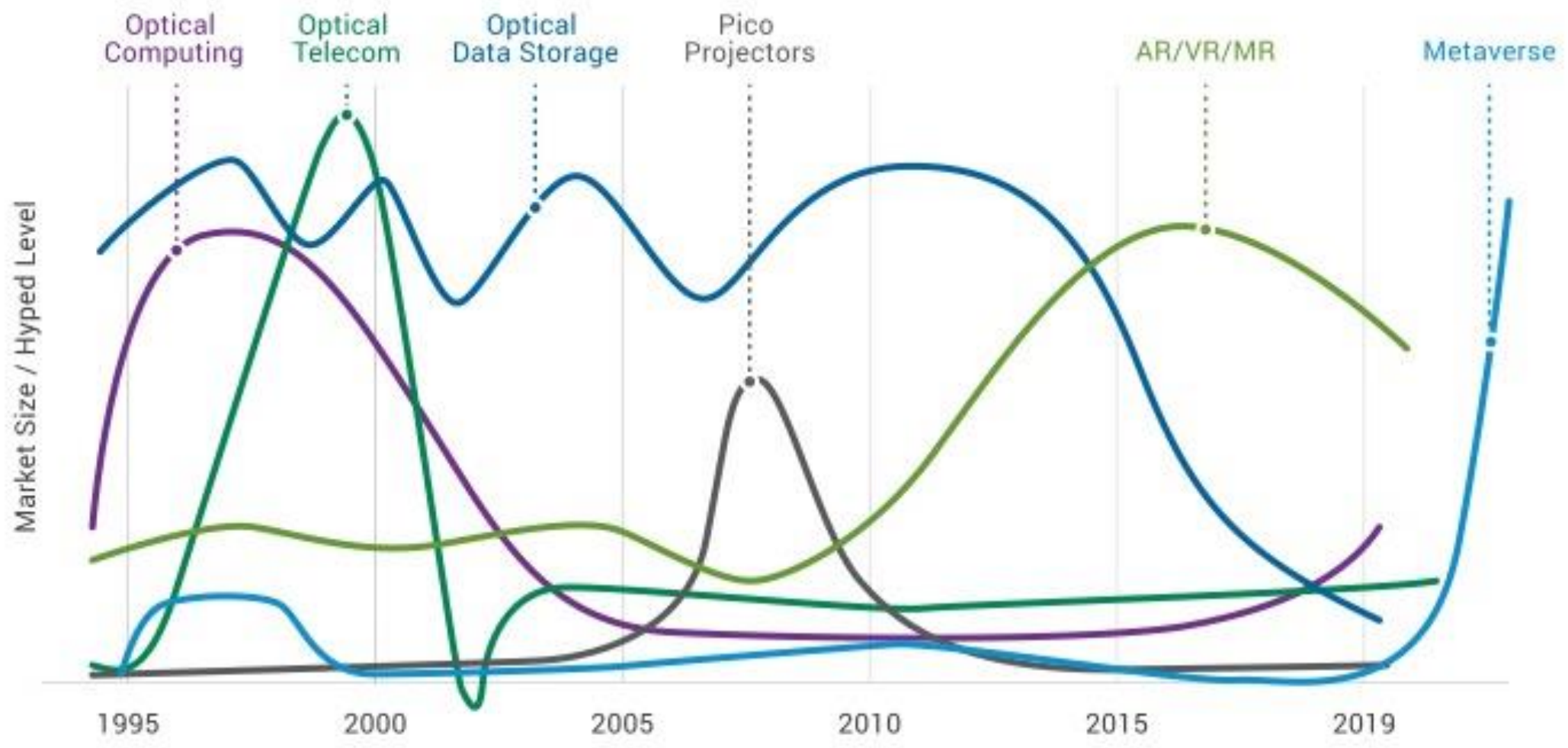
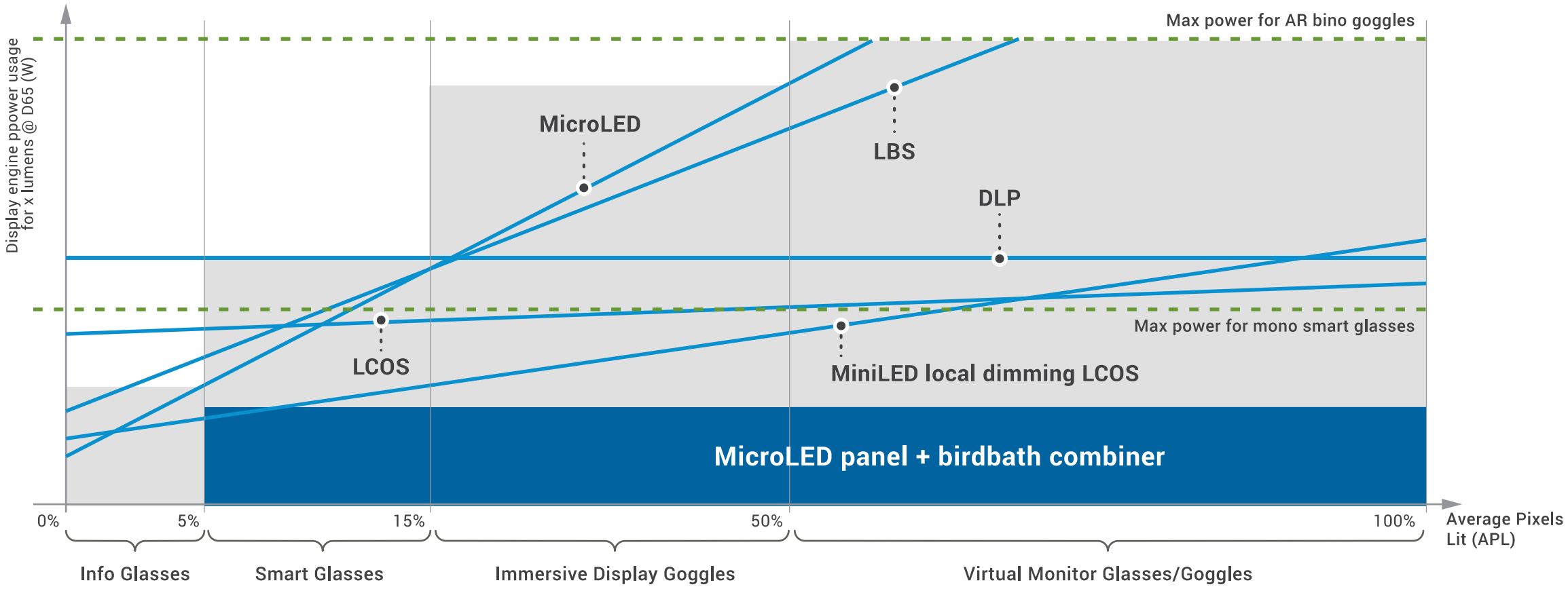


Graphic derived from "Monthly webinars for SPIE AR | VR | MR"

Successful Management of Uncertainty



Graphic derived from "Monthly webinars for SPIE AR | VR | MR)

Successful Management of Uncertainty

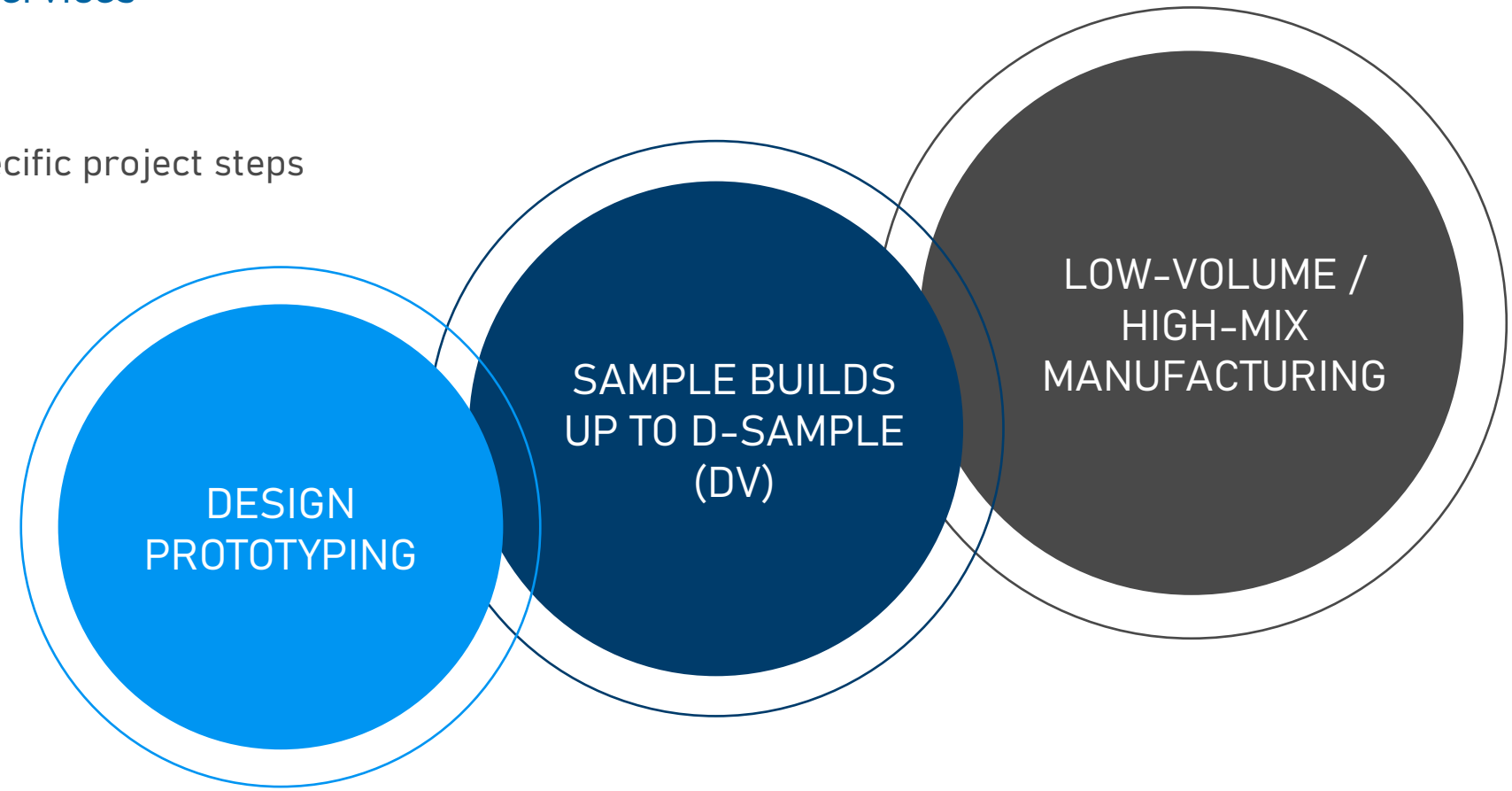
Combination of Two Worlds

(Contract) Design / Engineering Services

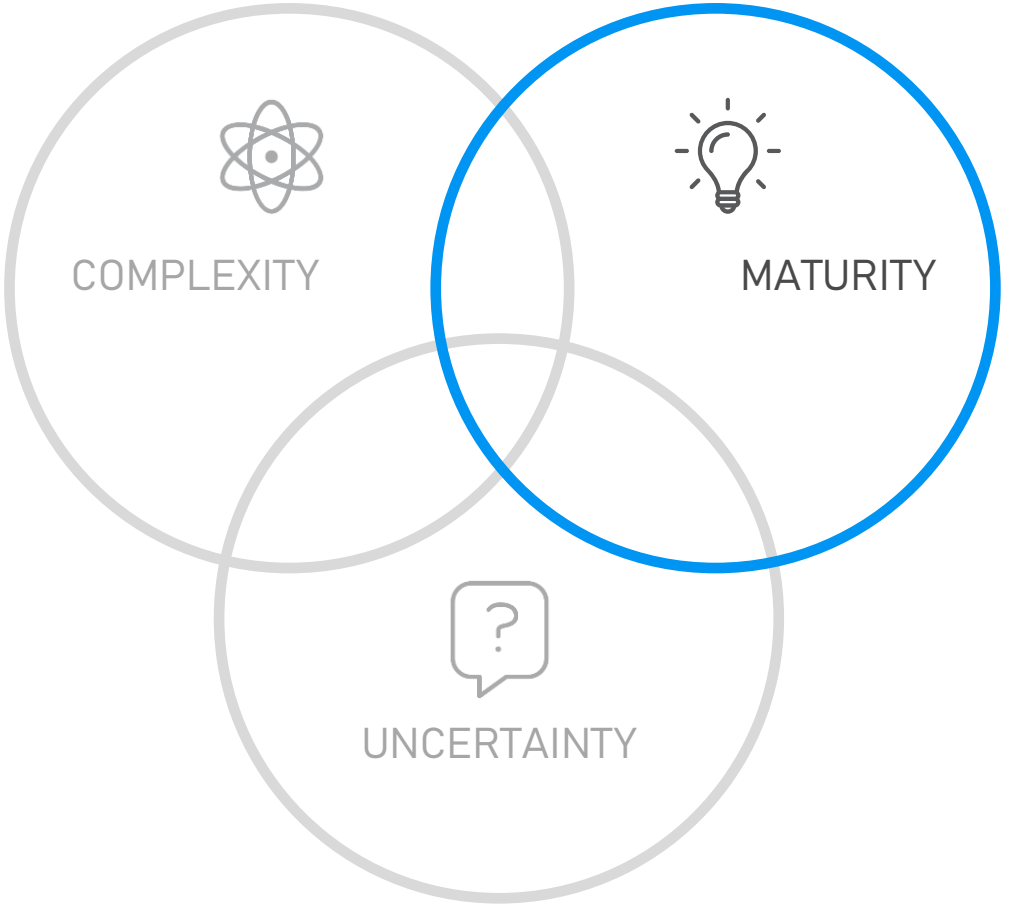
- PoC / sample builds
- Changes are welcome
- Budgets can be tailored to specific project steps

Contract Manufacturing

- High-volume / BTP
- Changes are not possible
- “Everything is fixed”

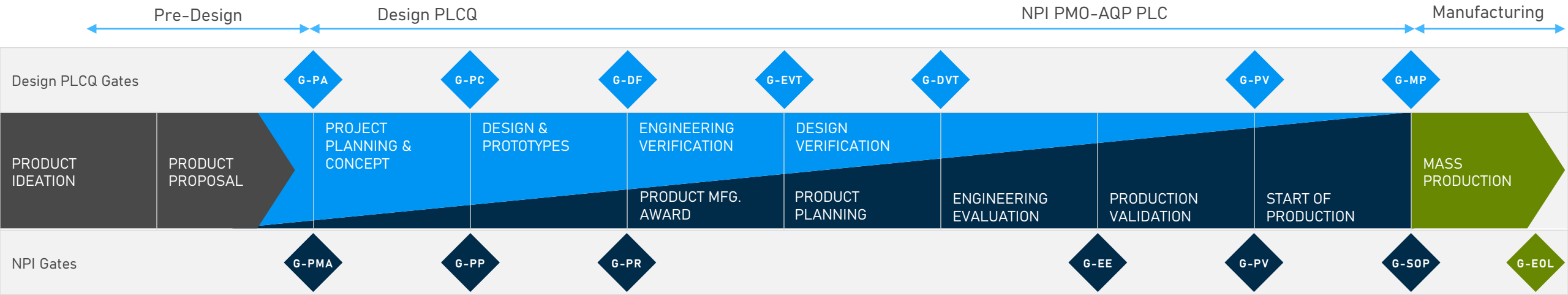


Successful Management of Product Maturity



Successful Management of Product Maturity

Updated Product Development Process (PLCQ)



Theory

Transition from Design to Manufacturing

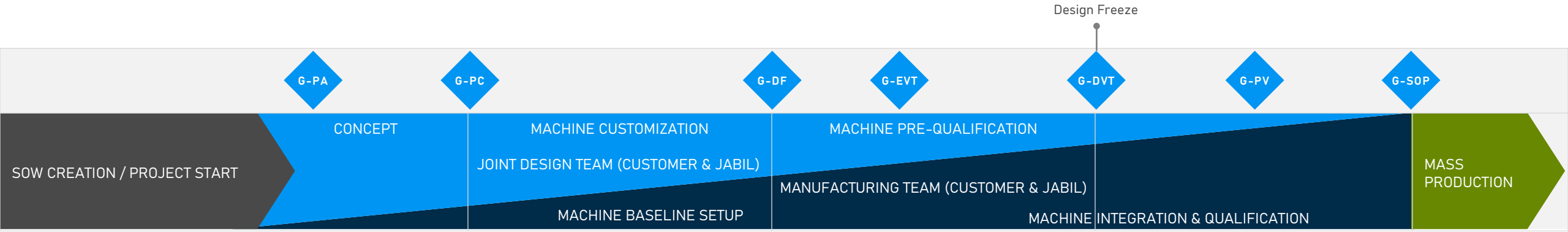
Advantages

- Hand in hand development of product & equipment
- Ability to react to design ‚shortcomings'
- Focus on best product outcome (performance, yield, CT)
- Best knowledge-transfer structure
- Flexibility
- Good and fast response to changes

Successful Management of Product Maturity

Learnings From Previous Customer Projects – Collaboration

- **One Team** approach (Design & Manufacturing) for best effectivity
  - Joint design team solves design and DfM topics together
  - Jabil design team able support transfer due to knowledge of the design
- NPI to MP transition phase instead of fix handover date for best efficiency
- Both together ensure best knowledge transfer



We solve problems that nobody else solves.

1. We combine start-up mentality with the one of the world's largest manufacturing service provider in the world.

2. We focus on your design needs without insisting on a mass production guarantee.

3. We provide worldwide access to engineering and manufacturing experts in all technological fields.

MADE **POSSIBLE.**
MADE **BETTER.**