



Packaging Technology

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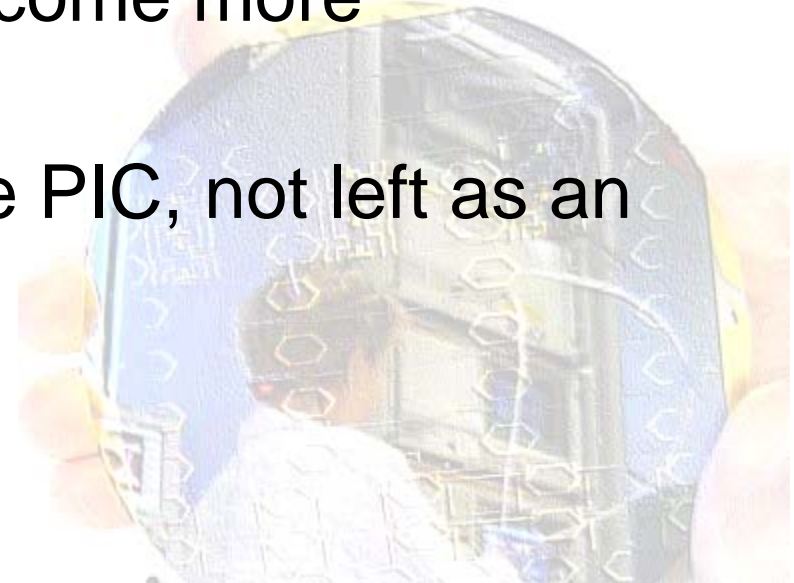
Web: www.ciphotonics.com



Photonic Integration



- Greater functionality
- Greater complexity
- More interfaces – optical, RF, DC, Thermal
- Packaging and testing become more important
- Must be designed with the PIC, not left as an afterthought



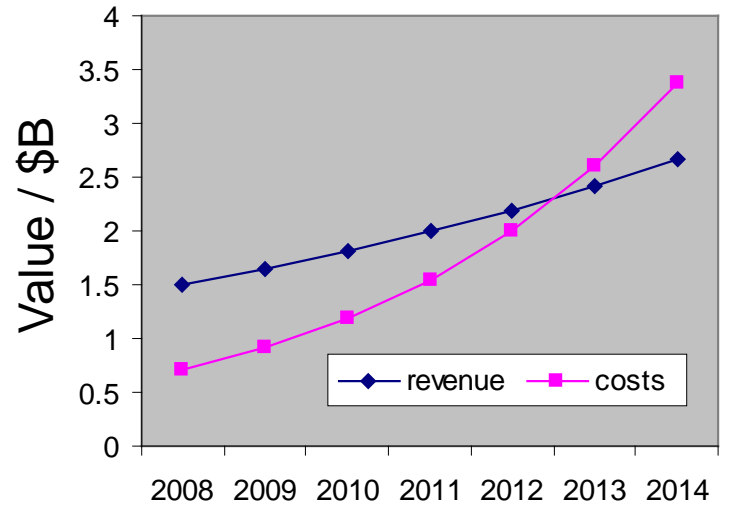
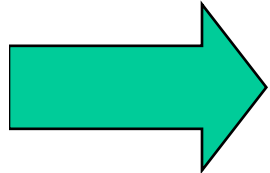
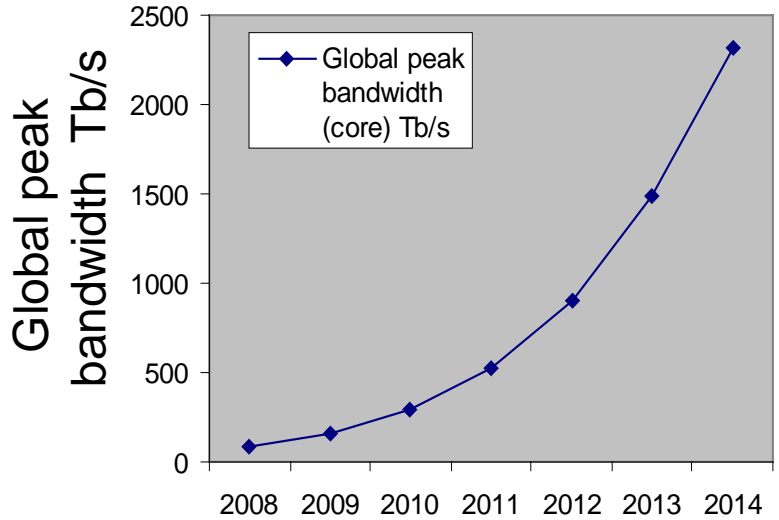
InP Foundry Services



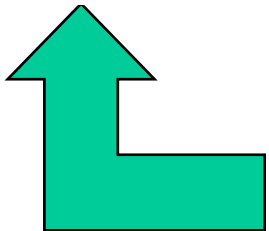
- Objective
 - Wide range of designs
 - Multi-project wafer runs
 - Monolithic integration
- Need for package simplification and standardisation to reduce cost



The Telecoms Industry Dilemma



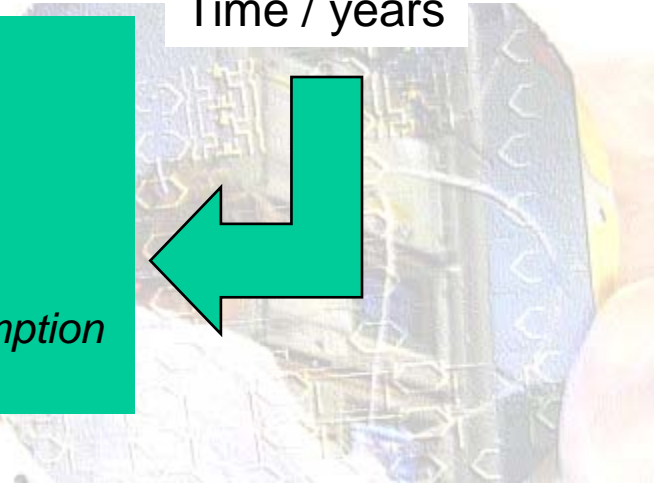
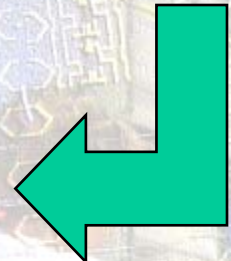
Time / years



Drives need for...

- Capex reduction
 - *more-for-less*
- Opex reduction
 - *reduced footprint*
 - *lower power consumption*
 - *fewer truck rolls*

Time / years



Costs of conventional packages



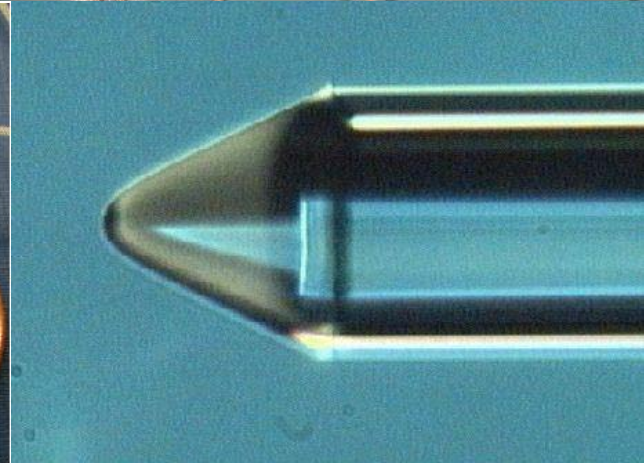
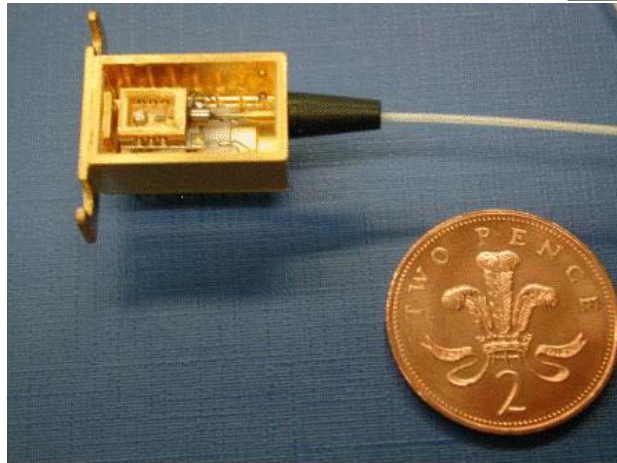
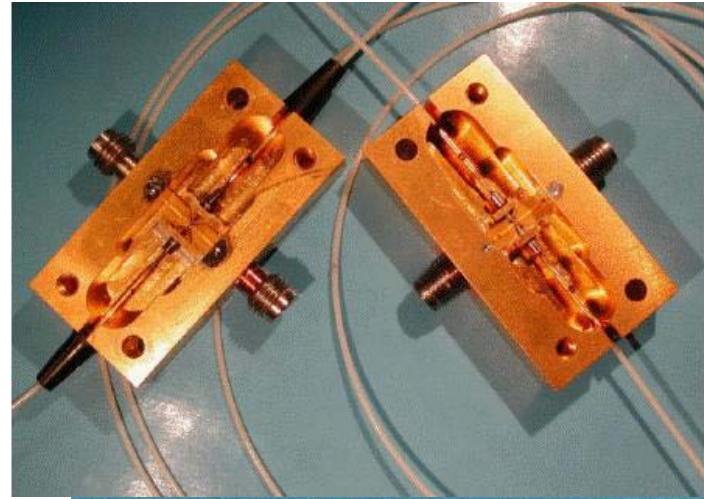
- Packaging and testing > 80% of cost of conventional optoelectronic device
 - Outsourcing to low wage economies
 - Automation to reduce costs
 - Mode size
 - Integration



Conventional Packages



- “Gold box” packages
- Single optoelectronic devices
- Active alignment – lensed fibres
- Expensive

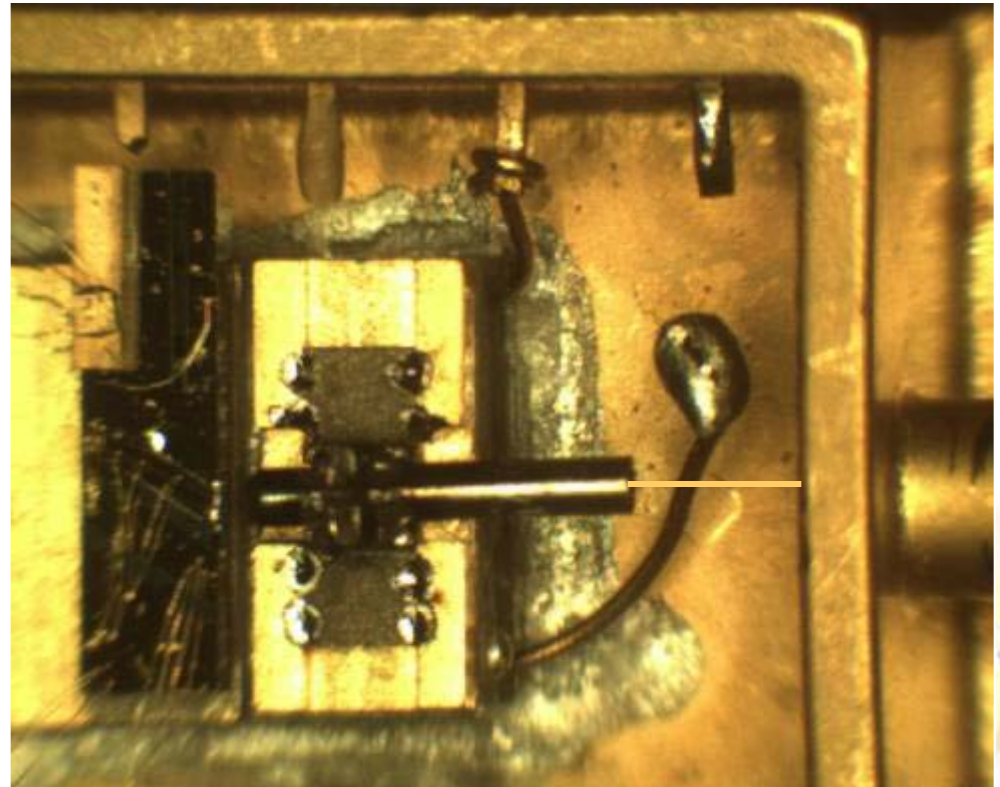


Lensed fibre

Saddle welded lensed fibre



- Fibre glassed into metal tube
- Saddle welded on to tube
- Saddle welded to metal submount



What can we do?



- Standardise
 - Chip sizes
 - Positions of optical interfaces
 - Mode sizes of optical interfaces
 - Positions of RF interfaces
 - Positions of DC interfaces

