

# NPI: The New Product Introduction Process at Silex



## Taking Your Product to Mass Production

As the world's largest pure-play foundry with a singular focus on MEMS technologies, **Silex Microsystems** has helped the MEMS industry's most innovative companies take their MEMS to Market, Faster™. With the experience of hundreds of unique engagements in all application areas of MEMS, each having unique product and process qualification requirements, Silex has defined its New Product Introduction Process (NPI Process) to provide a predictable, reliable, and data-driven path to volume production.

Silex's NPI Process is comprised of a series of phases and tollgates, important milestones which keep Silex and customer expectations in close alignment.

### Prospect Phase and Tollgate 0

Customer program signoff and program kickoff

By the time you reach Tollgate 0, the following will be developed:

- Device cross sections
- Initial specs or target values
- Statement of work from Silex covering the development program, timeframe and deliverables
- Pricing and schedule of the NRE payments

### Concept Phase and Tollgate 1

Concept Phase signoff and release of program to Prototyping Phase

By the time you reach Tollgate 1, the following will be accomplished:

- Proven concept of the design and manufacturing flow
- Delivery of fully featured and functional devices (not necessarily to full specs but functional nonetheless)
- Zeroed in on manufacturing flow areas that require further characterization, optimization or data collection
- Finalization of the product's basic feature spec and design approach

### Prototyping Phase and Tollgate 2

Completion of Prototyping Phase and Process Freeze

By the time you reach Tollgate 2, the following will be accomplished:

- Finalized product design
- Characterized and optimized manufacturing process
- Procurement of sufficient material for customer sampling
- Negotiated and finalized production pricing and volume ramp

### Pilot Production Phase and Tollgate 3

Completion of Pilot Production Phase and release to high volume ramp

By the time you reach Tollgate 3, you will receive:

- Production qualified material
- Final process and product specs
- A finalized manufacturing quality control plan
- Finalized forecasts for production volumes

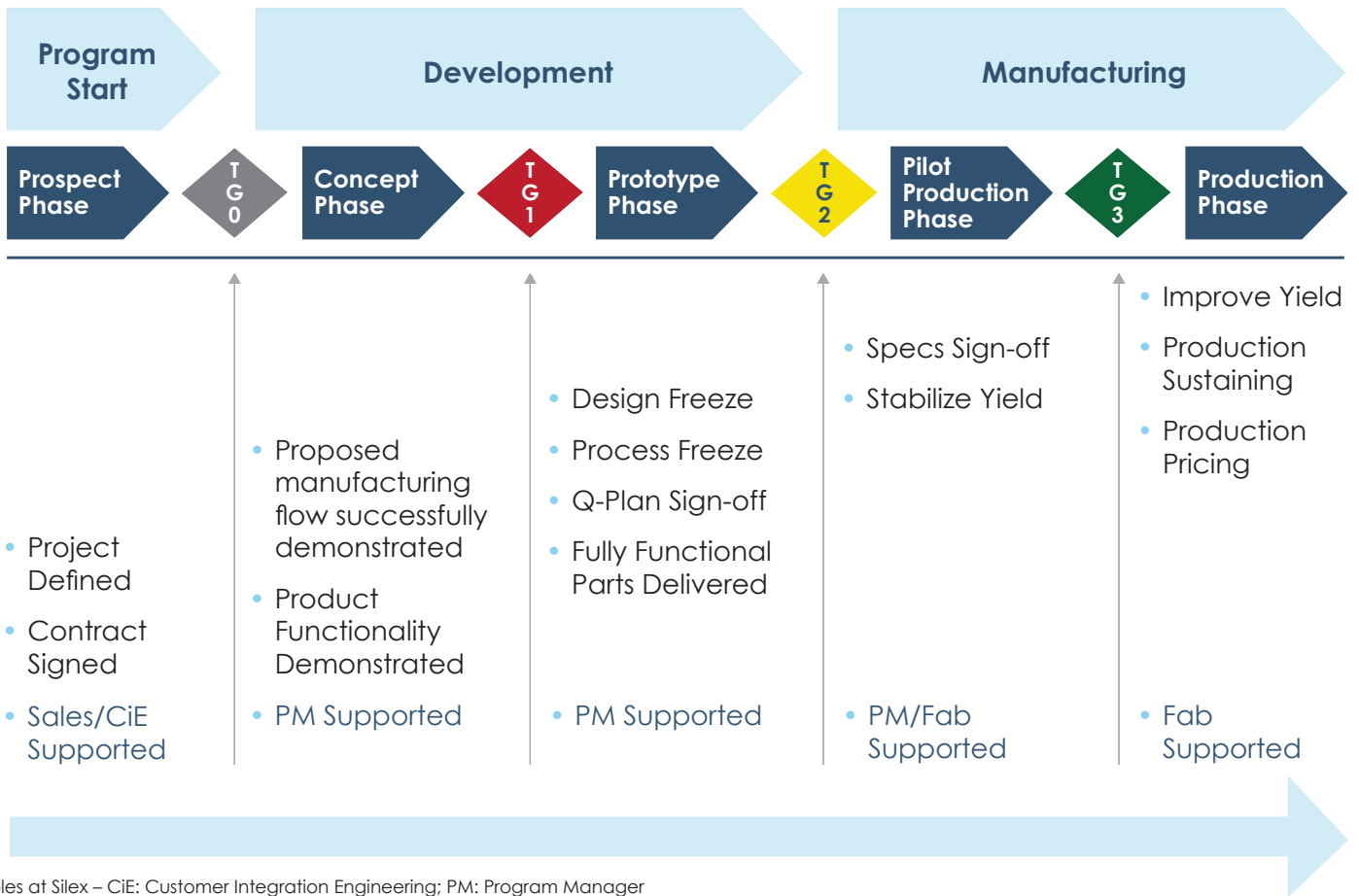
### Production Phase

Ongoing volume production support and yield improvement by Silex.

## Benefits of Working with Silex's NPI Process

- Alignment of expectations and risks in both process integration and product development
- An engineering-driven approach to the complexities of MEMS manufacturing
- Data-driven development leads to lower costs in the long run
- Meets customer needs for prototypes and sampling and Silex's needs for controlled production
- Agreed upon acceptance criteria for volume manufacturing
- Allows for improved product planning
- Recognizes the "progressive risk management" of MEMS development and the market needs of our customers

## NPI Process Customer Engagement and Major Tollgate Milestones



Roles at Silex – CiE: Customer Integration Engineering; PM: Program Manager

### About Silex Microsystems

As the world's largest pure-play MEMS foundry, Silex Microsystems is driving the sensory system revolution by partnering with the world's most innovative companies to commercialize MEMS technologies that are changing the world. Our unique expertise in providing cutting-edge MEMS foundry services, innovative process technologies and proven high volume production capabilities enable MEMS innovators to rapidly, cost-effectively and reliably commercialize and ramp products to high volume. At Silex, customers work closely with the industry's most knowledgeable and creative MEMS manufacturing experts and benefit from our global ecosystem of development partners to take MEMS to market faster.

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