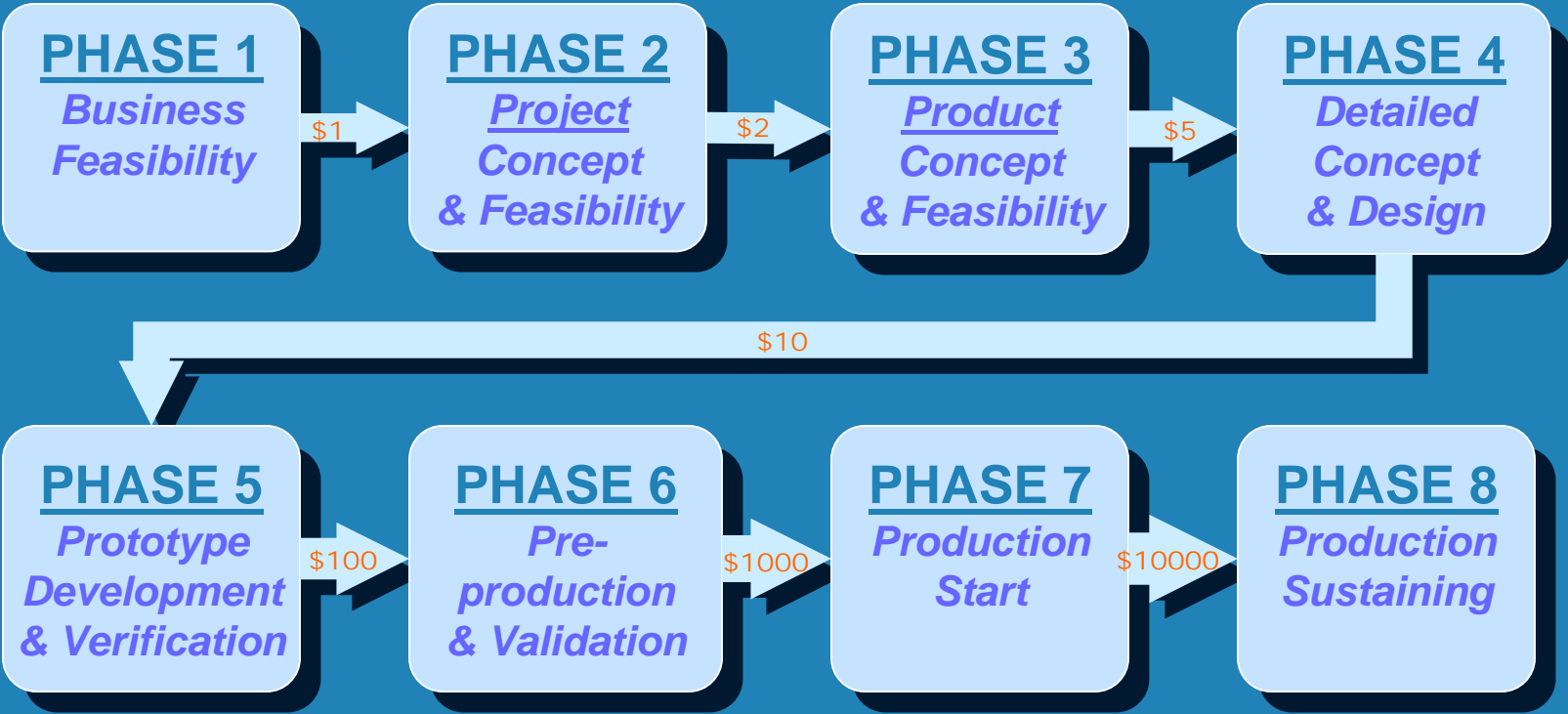




8-STEP PHASED PRODUCT DEVELOPMENT PROCESS

VIRTUAL SYNERGY PHASED PRODUCT DEVELOPMENT



➔ Go/No-Go Decision; \$ = Relative Figure-of-merit for Investment



PHASE 1 - Business Feasibility

Establish a business basis for the development.

- ☀ Basic product concept(s).
- ☀ User, competition & market requirements.
- ☀ Development & design methodology.
- ☀ Production & manufacturing process plan.
- ☀ Marketing, selling channel approach.
- ☀ Estimated resources, plan & schedule.
- ☀ Pro forma financials: project, product.

Go/No-Go (Investment \$1)

PHASE 2 - Project Concept & Feasibility

Establish an operational basis for the development.

- ✦ **Verify market & marketability:**
 - User requirements; Market share & segmentation
 - Competition & competitive edge.
- ✦ **Expand product specification:**
 - Demands: Functional, performance, Interface, ID & HF.
 - Standards: Regulatory, corporate, industry & design.
- ✦ **Detail resource needs.**
- ✦ **Refine project/product cost, budget, schedules.**

Go/No-Go (Investment \$2)

PHASE 3 - Product Concept & Feasibility

Establish technical basis for the development.

- ✦ Detail system & product architecture:
 - Technical & design requirements (ID, EE, SW, ME...)
 - Patent & intellectual property review
- ✦ Brainstorm conceptual solid model(s).
- ✦ Estimate gross BOM & COGS.
- ✦ Review manufacturing & procurement options.
- ✦ Draft the product specification, weigh against market requirements.
- ✦ Refine project/product merits.

Go/No-Go (Investment \$5)

PHASE 4 - Detailed Model & Design

Refine the model & complete the system design.

- ✦ Refine the selected model.
- ✦ Detail product technical specifications:
 - Engineering: ID, HF, EE, ME, SW.
 - Tests: Compliance, Validation, Production/QC, User, Service.
- ✦ Design product:
 - ID, HF, EE, ME, SW, System, Tests, Fab'd parts/tooling.
 - Packaging & collateral materials.
- ✦ Comprehensive pre-build design review.
- ✦ Set a manufacturing process & QA plan.
- ✦ Refine BOM & AVL structure.

Go/No-Go (Investment \$10)

PHASE 5 - Prototype Build & Verification

Verify that the product is designed *correctly*...

- * Implement the Design.
 - * 'FEFO' - Fail Early - Fail Often
 - ⇒ Prototype as often as necessary to get buy-in from all project stakeholders;
 - ⇒ Learn about the product's functionality, performance, usability and cost.
 - * Verify functionality/performance to spec.
 - * Perform preliminary compliance testing.
- (continued...)

PHASE 5 - Prototype Build & Verification

...and prepare for production.

(continued...)

- ✦ Develop supply chain & provide quotes.
- ✦ Hold design review.
- ✦ Release preliminary documentation.
- ✦ Obtain tooling costs and lead time.
- ✦ Update & refine project & product costs.

Go/No-Go (Investment \$100)



PHASE 6 - Pre-Production & Validation

Start the production process...

- ✦ Determine pre-production build plan.
- ✦ Release doc. package to manufacturing & set up doc. & configuration controls.
- ✦ Order pre-production tooling.
- ✦ Test tooling 1st-Articles & fabricated parts.
- ✦ Optimize tooling as required.
- ✦ Finalize AVL & BOM costing.
- ✦ Launch pre-production build.

(continued...)

PHASE 6 - Validation & Pre-Production

... and validate that the product is *correct*.

(...continued)

- ✦ Perform final compliance & fitness testing.
- ✦ Launch life testing.
- ✦ Perform product Beta testing to gain Client, market & end user acceptance input.
- ✦ Review project & product costs.
- ✦ Implement necessary modifications.

Go/No-Go (Investment \$1000)

PHASE 7 - Production Start

Validate and support the full production process.

- ✦ Validate production process:
 - Monitor test & QC reports.
 - Monitor & implement corrective actions.
- ✦ Order production level tooling as required.
- ✦ Ramp-up supply chain, production, QC & production testing.

(Investment \$10,000)



PHASE 8 - Production Sustaining

Support, improve the product and production.

- ✦ Implement functional, performance, reliability, production, & supply chain cost improvements.
- ✦ Implement warranty support & service plan.
- ✦ Anticipate & create End-Of-Life plan.

VIRTUAL SYNEGRY PHASED PRODUCT DEVELOPMENT

Where VSI can bring value:

