

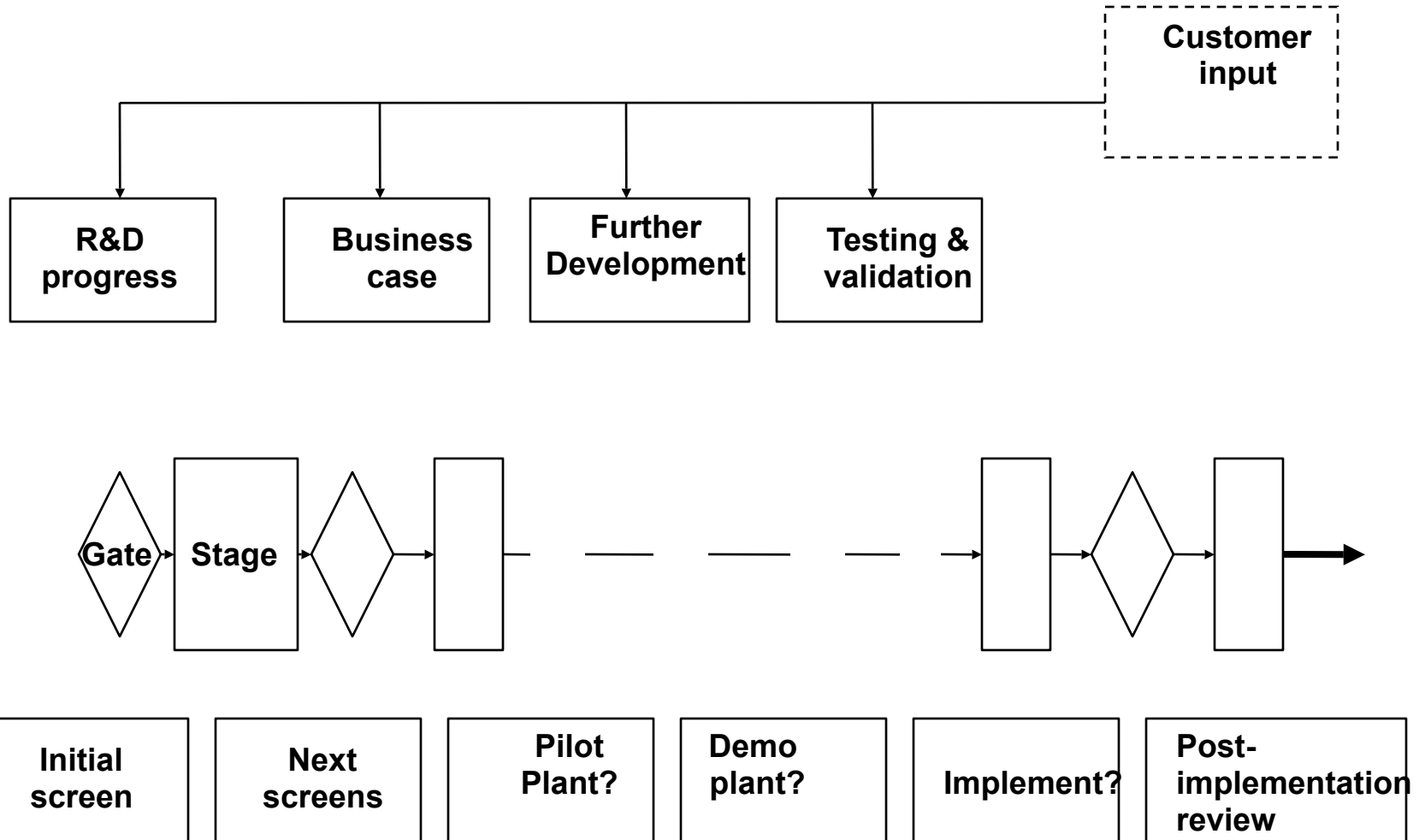
# **Stage Gate Reviews in R&D**

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# New Process Development Stage Gate Process

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# Purpose of the Review

- **To ensure significant progress towards the goals of the R&D project.**
- **To determine changes in priority and direction.**
- **To determine goals for next period.**
- **To stop the project and redirect resources.**

# **What does a Review Team look like?**

- **Representative of funding department.**
- **Outside technical expertise.**
- **Internal technical expertise.**
- **Representatives of proposed end users.**
- **Representative of financial department.**
- **Members of the R&D team.**

# **Regular stage gate reviews determine continuation of project**

- **Clear criteria for continuation are established during previous reviews.**
- **An updated business case is very important part of the consideration.**
- **Project goals often change significantly during the toll-gate review.**
- **Projects often stopped for economic rather than scientific reasons.**

# Priorities for Companies

- **Adding value at the bottom line is highest priority.**
- **A balance between tactical, strategic, and speculative R&D is required.**
- **Rapid commercialization usually has priority over detailed understanding.**
- **Company goals change rapidly and R&D funding must be easily redirected.**

# A balanced Technology Portfolio?

- **Curiosity driven research.**
- **Revolutionary R&D drastically changes cost structures and often introduces new products and processes.**
- **Evolutionary R&D aims at step-changes in efficiency for existing technologies.**
- **Tactical R&D supports short term problem solving.**

# **Methods of economic valuation used by Industry**

- **“Quick & Dirty” NPV Calculator**
- **Discounted Cash Flow / Net Present Value (DCF/NPV)**
- **Probabilistic Valuation (ENPV, P90-P50-P10) by Monte Carlo Analysis**
- **Valuation by Decision Tree Analysis (DTA) + Real Options Analysis (ROA)**

# Priorities in R&D

- **Universities want to further knowledge and educate future generations.**
- **Governments want to further the welfare of a country's citizens.**
- **Companies want to make profits for share holders – their owners.**
- **These three priorities suggest that toll gating may not always be appropriate!**

# Priorities for Universities

- **Academic excellence and curiosity driven research are key drivers.**
- **Undergraduate and research student education is a primary objective.**
- **Career prospects for graduates is of fundamental importance.**
- **Governance considerations (e.g. freedom to publish) are important.**

# Priorities for Government

- **Investment in Universities is directed towards a better educated work force.**
- **A primary objective is seeding new employment opportunities.**
- **Community issues (e.g. infrastructure, health, environment, employment) are much more important measures of value than money making.**

# **Can Stage Gates add value to Government Funded R&D?**

- **For CSIRO and other government laboratories: YES!**
- **For major collaborative projects funded through CRCs, Centres of Excellence, etc: Probably YES!**
- **For curiosity driven research: NO!**
- **Taking commercial processes into Universities can cause much damage!**