

Multi-Dimensional Assessment of Technology Maturity



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Report Documentation Page

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Multi-Dimensional Assessment of Technology Maturity



Issue:

Technology maturity at program initiation is a measure of acquisition program risk and a predictor of program success (1999 GAO report)

Measuring technology maturity requires a multi-dimensional perspective



What Is Technology Maturity?

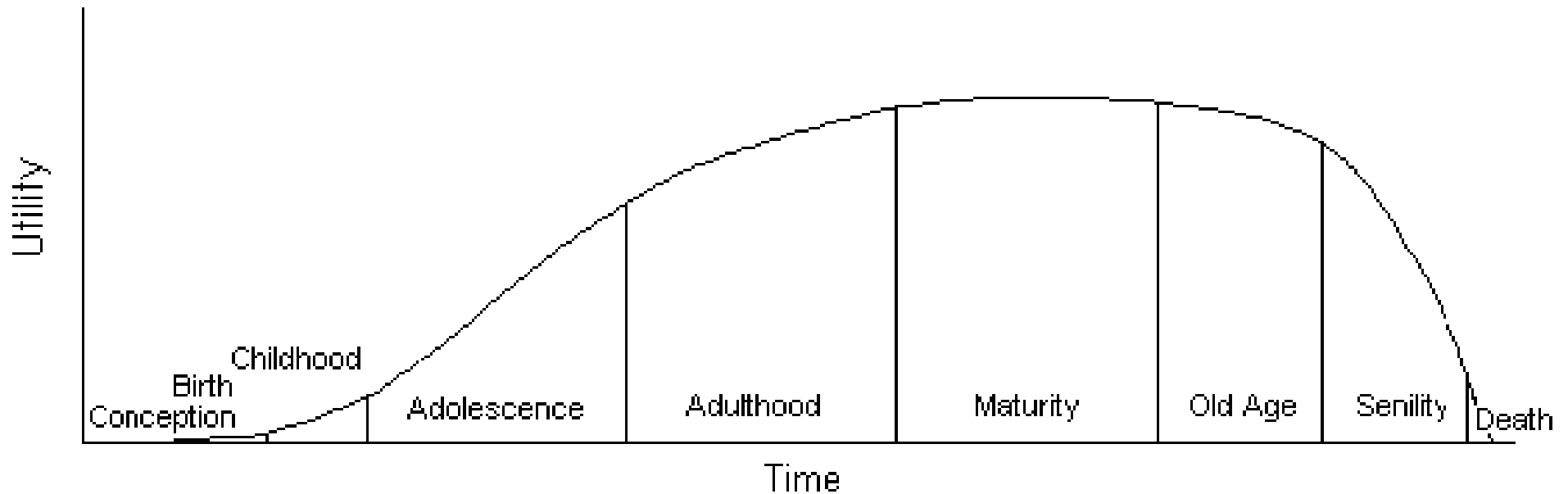


- **Maturity implies growing or changing over time**
- **In technology maturity:**
 - **The technology itself doesn't change***
 - **Our understanding of the technology changes**
- **As our understanding improves, the technology's usefulness may (should) improve**
- **Technology maturity measures a technology's position in the technology life cycle**

* **Gross over-simplification**



Technology Life Cycle



A technology's usefulness changes over time

- **Goal: Increasing Utility as a technology matures**
- **Later utility decreases as a technology becomes obsolete**

The “Whale Chart” shape inspired the conference logo



Technology Maturity



- **Characteristics**
 - Neutrality
 - Context Dependency
 - Dimensionality
- **Key Problem**
 - A – Technology Maturity Tells You Where You Are
 - B – Technology Maturity Indicates Where You Need to Be
 - **HOWEVER, Technology Maturity Does NOT Tell You How Much RISK There Is in Going from A to B**



Neutrality



- **Technology maturity is a “Value Neutral” concept**
- **Maturity is neither good nor bad**
- **Sometimes more maturity is better**
 - **Early in technology development**
 - **Wait until they get the bugs out**
- **Sometimes more maturity is bad**
 - **Approaching obsolescence**
 - **Diminishing manufacturing sources**



Context



- **The maturity of a technology depends on the context under which it is measured**
- **As the technical context changes, the technology maturity may also change**
 - **Installing an existing technology on a different platform**
 - **Using an existing technology in a new way**
 - **Increasing the scope of an existing technology application**
 - **Software package that is OK for 10 users crashes when 1000s try to access it simultaneously**



Dimensionality



- **Technology maturity dimensions are different ways of looking at technology maturity**
- **Four different perspectives or viewpoints**
 - **The technology itself**
 - **This perspective has received the most attention to date**
 - **It also gets almost all of the coverage in this conference**
 - **The programmatic view**
 - **The technology developer**
 - **The customer**
- **Each of these can be further broken down**



Technology Dimensions



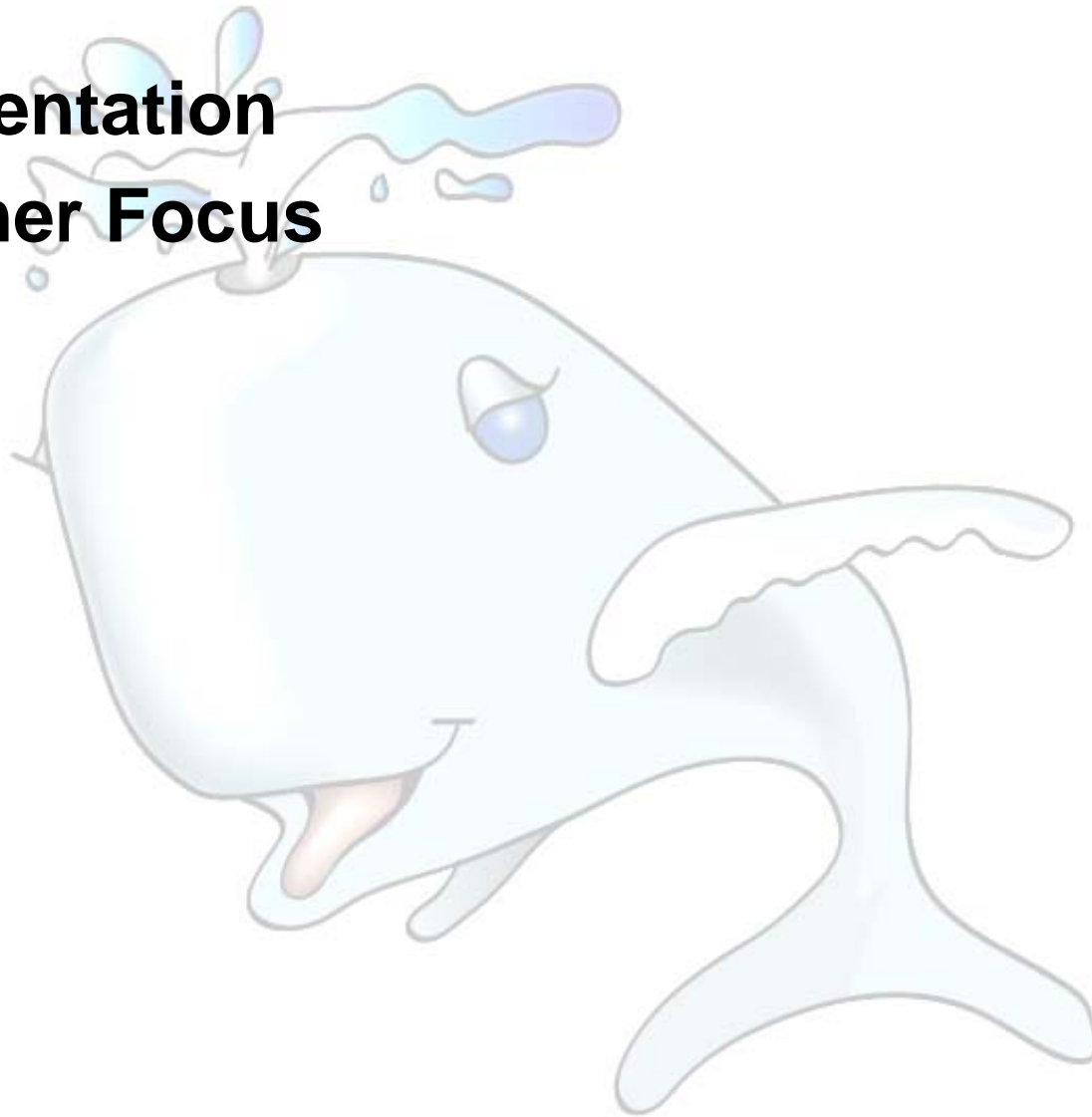
- **Current State Of Development (TRL)**
- **Amount Of Development Work Remaining (TRI / TPRM / TPMM)**
- **Difficulty Of Remaining Work ($R\&D^3$ / AD^2)**
- **Predicted Supportability Of Final Product (Logistics Readiness Levels)**
- **Interoperability With Existing Systems Or Products (CMMi / LISI)**
- **Manufacturing And Producibility (MRL / EMRL)**
- **Human System Interface (HSI) Readiness**



Programmatic Dimensions



- **Documentation**
- **Customer Focus**
- **Budget**





Developer Dimensions



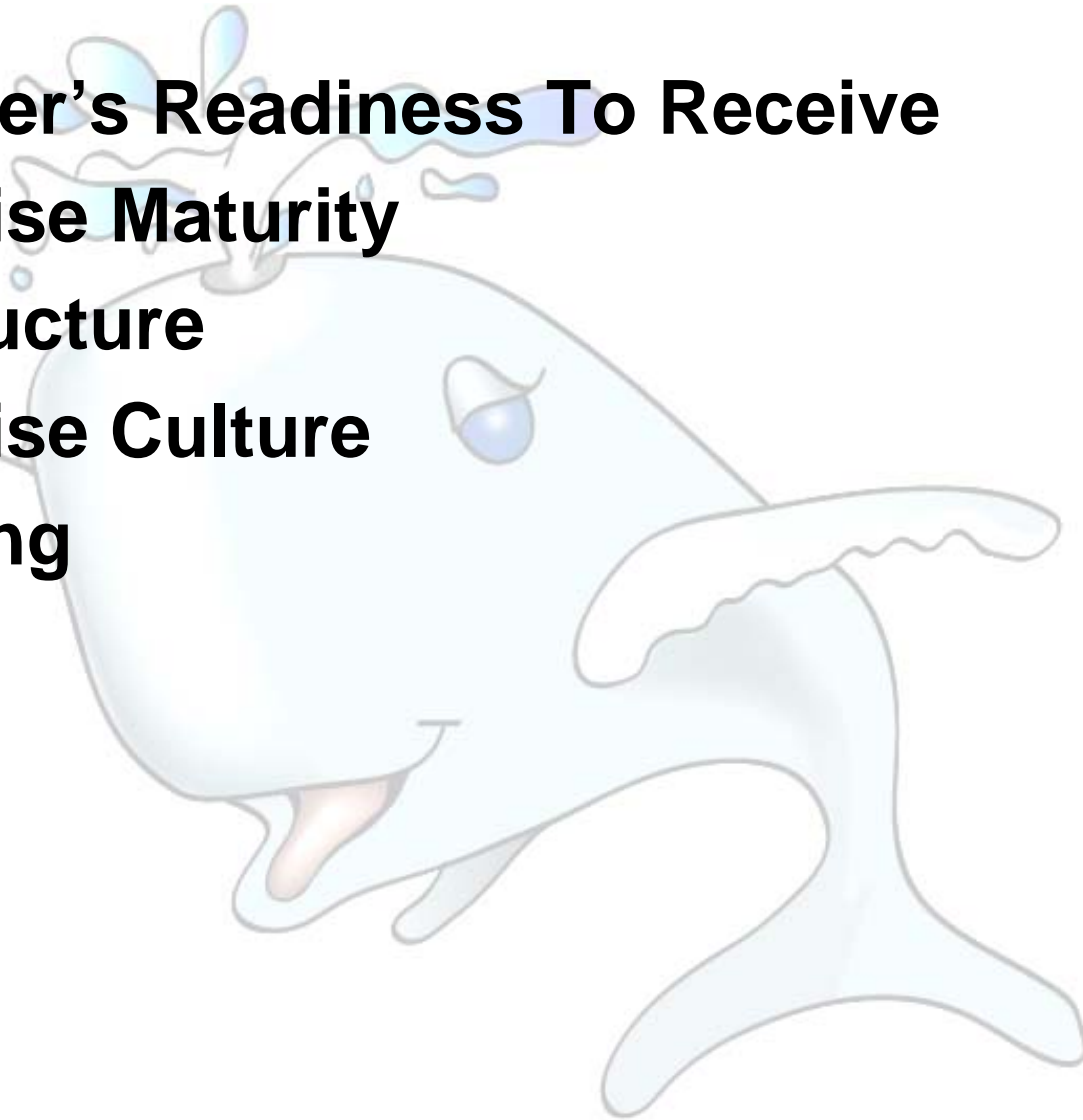
- **Capability To Perform**
 - CMM (Capability Maturity Model, software)
- **Production Process Maturity**
 - May be included under producibility in technology dimension
- **Past Performance**



Customer Dimensions



- **Customer's Readiness To Receive**
- **Enterprise Maturity**
- **Infrastructure**
- **Enterprise Culture**
- **Marketing**





Conclusion



- **Technology Readiness Assessment Should Support Further Investment Decisions**
 - **Knowledge of Technology Maturity Is Crucial to Technology and System Development**
- **Technology Maturity Measures Where You Are in the Technology Life Cycle**
 - **Technology Maturity Is a Value Neutral Concept**
 - **Technology Maturity Is Context dependent**
 - **Technology Maturity Is Multi-Dimensional**
- **The Technology Maturity Dimensions Discussed Here Are One Way to Approach This Issue**
- **There Is a Lot of Work to Be Done Yet**



That's All!

