

“5G” Model for Stakeholder Value Engineering

in Software System Design, Development and Delivery

concept by

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Stakeholder Value Engineering

Why and How a Software System fails to meet Stakeholder Expectations ?

Success rates of Software Systems meeting legitimate Stakeholder Expectations right the first time is still very poor worldwide.

The “ 5-Gaps ” (5G-Model)

- The root “Cause-Effect” of Software Systems not meeting Stakeholder Expectations.
- Through “5G” analysis, we consistently identify ways to align our options, plans, strategies and actions, **at closing these gaps**, systematically
- By focusing on “5G”, we learn to design and build software systems, **the right way**, that meets stakeholders’ expectations, **right the first time**.
- We also learn to do this efficiently, time after time, every time.

GAP - 1

What the Stakeholders “say” they want

VS.

What the Stakeholders really “need”

GAP – 1 (contributors)

- Stakeholders may not know what they actually need that could meet their expectations / solve their problems
- Stakeholders Expectations may not be “tenable” due to “misperceptions”
- Stakeholders may not be able to correctly communicate or articulate their expectations
- Individual stake holder's expectations may be limited to their individual view or perspective of the System
- Inability to anticipate Stakeholders' Expectations
- Inability to understand Stakeholders' Expectations correctly in the right context

GAP - 2

What the Stakeholders “really” need

VS.

**What is “recorded and communicated” in
the Requirements Specifications**

GAP – 2 (contributors)

- Inability to understand Stakeholder Expectations correctly and therefore misrepresented
- Lacunae in the communication style
- Communication is not clear, complete, correct or consistent
- Intent of communication is misinterpreted due to contextual inconsistencies
- Inherent lacunae and “noise” in written natural language
- Lacunae in the process of managing data, information and knowledge systematically and formally during Requirements Engineering

GAP - 3

**What is “recorded and communicated” in
the Requirements Specification**

VS.

The “Intent” of System Design

GAP – 3 (contributors)

- Stakeholder Expectations not correctly understood by the Architect in the right context
- Wrong or inappropriate choice of technology or technology combination in Design
- Intent of Design not feasible or practical
- Intent of Design does not integrate the combined expectations of multiple stakeholders and their respective viewpoints
- Inability to implement all the expectations in a System design
- Inability to validate the Intent of Design comprehensively

GAP - 4

The “Intent” of System Design

VS.

The “ability” of the System Features (so implemented) to deliver the “intended” benefits to the Stakeholders in real time use

GAP – 4 (contributors)

- Lacunae in Reliability and Performance Engineering of the System in meeting legitimate Stakeholder Expectations
- Lacunae in Usability Engineering in meeting expectations
- Wrong prioritization or inefficient implementation of non-functional requirements
- Non-functional requirements implemented does not meet the needs of the users in a usage scenario / context of use
- Misuse Cases not anticipated adequately. Inadequate understanding of implicit requirements in Software Systems
- Inability to validate the appropriateness and adequacy of non-functional requirements before release of the Software System

GAP - 5

**Stakeholders' Expectations on the
Software System**

VS.

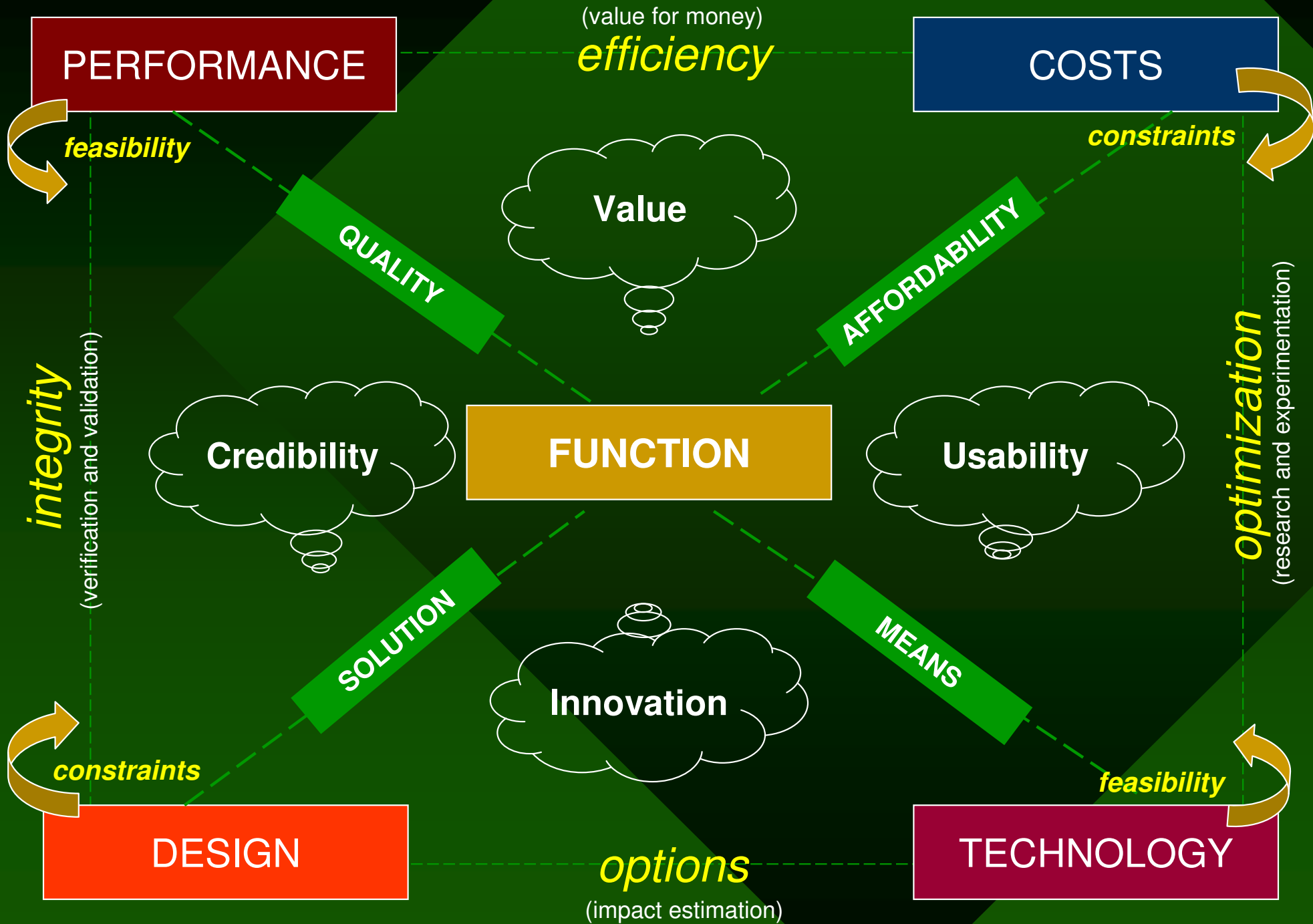
**The “extent” to which the Software
System finally meets and exceeds
Stakeholders' Expectations**

GAP – 5 (contributors)

- Expectations not anticipated and understood correctly well in advance. Wrong commitments made to stakeholders
- Expectations that were not tenable, were not managed in advance through strategic Perception Management
- Expectations changed during the process of System Design and Development due to stakeholders building clarity on Perceptions
- Over selling. Sales staff hyped up expectations of the customers / stakeholders at the time of sale.
- Commitments made were not kept by either parties
- Unforeseen Risks, Constraints, Complexities in the entire life cycle of System Design, Development and Delivery (One can expect Positive Gaps too, that are created by accident. These could be the realization of unplanned benefits by the stakeholders in a changed context or usage scenario)

Value Influencers

- **Function** : Functionalities needed in the Software System to solve the problem or address the expectations of the Stakeholders
- **Design**: The solution architecture, approach strategy and engineering options, chosen to build the Software System that is intended to solve the problem in hand
- **Technology**: Choice of technologies implemented in Design, to realize the proposed benefits sought, within the mandated constraints, efficiently.
- **Cost**: Stakeholders' affordability in the given context and constraints imposed on availability of Resources (man, money, time, materials)
- **Performance**: Ability of the System Features to solve the problem efficiently in real time usage by stakeholders / users and meet their legitimate expectations. (ability to satisfy the stakeholders and users)



Motivators

- **Features – Advantages – Benefits** Theory
- **SERVQUAL** theory for anticipating, understanding, meeting and exceeding Customer Expectations.
- **Competitive Engineering** and Evolutionary Project Management (Evo), “No cure, No pay”
- **Agile Methodologies** - Extreme Programming in particular
- **Theory of Constraints** and Critical Chain Management
- **Value Engineering** and Industrial Engineering Principles
- **GAPS Model** in Service Quality Management

Systematically aligning, planning,
engineering and managing all the...

“Value Influencers” and the “5 Gaps”

to generate the desired outcome efficiently,

delighting the Stakeholders all the way,

is called Stakeholder Value Engineering