COSMIC in Internal Software Delivery: Transparency, System Effects, and the Economics of Functional Output

A reflective summary based on the talk at COSMIC AGM 2025

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Introduction

This summary expands on the themes of the talk delivered at the COSMIC AGM 2025.

It outlines how COSMIC Function Point sizing has been used inside an internal delivery organisation to improve transparency, reduce uncertainty, and create a clearer economic picture of software work.

It also looks ahead to how functional sizing can support new models of funding and measurement as organisations mature.

1. COSMIC Inside an Internal Delivery Function

1.1 The Transparency Challenge

Most internal engineering organisations operate without a shared sense of "size".

Work is initiated, planned, and funded using intuition, historical narratives, and hopeful assumptions.

This leads to patterns commonly seen across the industry:

- optimistic underestimation
- unclear expectations
- overcommitment and delivery tension
- reduced trust between stakeholders

These effects come not from poor capability, but from the intrinsic invisibility of software work.

COSMIC helps by making the object of discussion—functional behaviour—explicit.

1.2 COSMIC as a Shared Model of Software

COSMIC's greatest value is often its simplest insight:

software can be described as a flow of functional data movements with clear triggers, boundaries, inputs, and outputs.

This gives everyone—engineers, analysts, product owners, architects, and leaders—a common frame of reference.

Instead of debating effort, skill, team capacity, or optimism, conversations begin with structure:

What is the functional behaviour?

How large is it?

How does it change the system?

This shared model significantly reduces ambiguity and misalignment.

1.3 Early Sizing for Early Clarity

Using COSMIC early—before detailed requirements exist—creates clarity where ambiguity usually thrives.

It does not promise certainty.

Instead, it prevents unrealistic expectations from forming and allows stakeholders to understand the scale of what is being proposed.

Early sizing supports:

- better prioritisation
- more grounded planning
- earlier detection of ill-formed scope
- more rational portfolio decisions

It removes the guesswork that normally fills the first stages of a delivery conversation.

1.4 Automation Makes Sizing Lightweight and Usable

For many years, functional sizing required manual effort that limited adoption.

Automation now makes it quick and practical.

When sizing is integrated directly into existing tools—such as work items in a backlog—the effort becomes nearly invisible.

Teams do not need to learn a new method or attend training.

Sizing simply appears as part of the workflow.

This allows COSMIC to operate at scale without becoming a burden.

1.5 Cost per FP Creates Economic Clarity

Once size is known, it can be related to cost.

This unlocks Cost per Function Point, which reveals structural factors that normally remain hidden, including:

- architecture friction
- platform maturity
- domain fragmentation
- cognitive overload
- inefficient team topologies
- unstable environments

Instead of subjective discussions about "performance", organisations gain an objective way to understand where value is being created or lost.

It becomes possible to relate engineering activity to economic outcomes.

1.6 Functional Output Also Reveals Human Signals

FP throughput often exposes issues unrelated to functional complexity:

- excessive context switching
- unclear ownership
- teams supporting too many systems
- chronic rework
- fragmentation of responsibility

These constraints are human and organisational, not technical.

Because COSMIC focuses on functional behaviour, it makes these structural issues more visible and easier to discuss without blame.

1.7 Example: The "10× Portal" Insight

In one case, two teams with comparable missions and technology produced drastically different functional output.

The team delivering far less was not underperforming—they were supporting an ecosystem, not a single system.

Without functional sizing, this issue would have remained obscured behind effort, hours, or anecdotal explanation.

COSMIC provided the visibility needed to realign architecture and ownership.

2. System Effects and Future Directions

2.1 The Three Loops That Shape Behaviour

The talk outlined three interconnected loops that explain why COSMIC produces such wide-ranging effects:

<u>The Trust Loop</u>

Visibility → Confidence → Better Decisions → Predictability → Trust

This loop improves communication and reduces the friction caused by uncertainty.

<u>The Capability Loop</u>

Cost per FP → Leadership Attention → Platform Investment → Capability → Throughput

This loop links engineering performance to investment and system design.

The Complexity Loop

Complexity → Cognitive Load → Throughput ↓ → Observability → Simplification

This loop highlights where the organisation is overextended or structurally constrained.

Together, these loops form a practical lens for understanding the system-wide impact of functional sizing.

2.2 FP Budgets: Funding Functional Outcomes

As functional sizing matures, organisations can begin allocating funding in terms of function points rather than projects.

This enables:

- stable, comparable investment decisions
- clear trade-offs across domains
- value-driven prioritisation
- prevention of inflated scope
- continuous planning rather than episodic, large-scale funding cycles

FP budgets shift the conversation from “How big is the initiative?” to “How much functional value will this deliver?”

2.3 FP Profitability: Understanding Functional Return on Investment

Beyond cost, organisations are beginning to explore FP profitability—the relationship between functional output and value created.

A simple formulation is:

FP Profitability = Business Value Delivered / FP Delivered

This creates useful questions:

- Which areas of the business convert functional investment into measurable outcomes?
- Which domains require high cost for low return?
- Where should engineering capacity be concentrated for maximum effect?
- How does architecture influence long-term value creation?

This thinking positions function points not just as a measurement tool, but as an economic signal.

2.4 COSMIC as a Bridge to AI-Assisted Specification

As generative tools reduce the cost of writing specifications and increase the feasibility of automated implementation, structured definitions of behaviour become more important.

COSMIC provides:

- a clear functional boundary
- a consistent vocabulary
- a measurable structure for intent

- a governance mechanism for checking correctness

This makes COSMIC useful not only for measurement but also as a foundation for future workflows where humans and automated agents collaborate on design and delivery.

Closing Reflection

COSMIC's impact within a delivery function goes far beyond the act of counting.

It introduces:

- a shared model of software
- early clarity
- reduced organisational noise
- more accurate expectations
- measurable economic signals
- visibility into structural and human constraints
- a foundation for more predictable engineering

Looking forward, functional sizing enables new funding models—such as FP budgets—and supports a move toward understanding the profitability of functional investment.

The result is a technology organisation that can operate with more trust, more alignment, and more transparency—qualities that are increasingly essential as systems grow in complexity.