

Discovering the Value Stream Network

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“The way work flows through an organization’s Value Stream Network is one of the least understood components of value delivery. Because this network was evolved entropically rather than intentionally, it’s both nebulous and pervasive which makes understanding the flow of value delivery very challenging. One cannot manage or improve what one cannot visualize and measure.”

Every company understands that in order to avoid disruptions and remain competitive they need to improve their delivery capability. Many billions of dollars are invested annually in modernization and transformation initiatives to achieve this goal. This begs two questions:

1. How does a company or organization know where to invest to improve?
2. How do they know if their investment is paying off?

Here’s some common anti-patterns that don’t address these questions:

Instinctively hiring more developers / testers / (insert your favorite role here without backing it up with data). This implies that the bottleneck in flow will be improved by increasing the capacity in a certain area of the value stream. But how do we know that this is really the problem? Do we know for a fact that every product has the same problem? Investing in an area that is not a bottleneck can add costs and make the bottleneck worse, as evidenced by Goldratt.

Thinking that starting more things earlier will improve delivery. This is what I refer to as “The Builder’s Dilemma”. Starting more houses may keep customers temporarily satisfied in that visible progress is being made on their construction, however the more houses (i.e. features) you start, the more work in progress (WIP) is created, which in turn creates more context-switching and delays completion.



Applying improvements (e.g. DevOps practices) mechanically assuming every product or system has the same needs. This is the type of initiative that might implement more automated testing across the organization even if this is not the bottleneck for every product’s value stream. This is like sending a bus of folks to the doctor and having them all get the same prescription even if their ailments and need are different.

What leads to implementing one of these anti-patterns is lack of visibility into:

- How work is actually done within the various components (products, systems, teams) of an organization to deliver value and
- How to determine if the changes made are actually improving the customer experience.

While teams may use the same tools and have a similar development process, the path that work takes to deliver value varies based on the dependencies and hand-offs necessary. Some work can be done independently by a 2-pizza team, but most commonly developing a new product capability requires “away work” to be done by another internal product.

Consider a new customer-facing financial or insurance product that requires a change in how billing is done. This likely requires some feature work to be done by an internal billing product. These types of shared internal systems can serve many external customer-facing products. As such, any impediments to flow in these systems impact multiple products. Likewise, any improvement in flow pays off many times in the improvement in the flow of the consuming products.

Dependent work provided by internal products can take two or more forms:

- **Feature dependency** – where a dependent team is doing feature work in support of a business deliverable or functionality. This can be mitigated using a service architecture.
- **Platform dependency** – for example, environment provisioning for QA or performance testing. Bottlenecks in the delivery of business products many times surface in the value streams of these dependent teams. For example, if a product needs an environment provisioned to perform release validation, then the SLA associated with the delivery of the business product is dependent on this SLA. This can be mitigated by providing self-service capabilities.



Because the value stream network that connects these products/systems was built up over time, generally through the implementation of services/interfaces between pairwise systems, as it has grown it has also become less visible. What may have started as a rather simple value stream network with a dozen or fewer nodes (systems) and connections, now resembles something more complicated than an airline's network of thousands of flight paths through hundreds of cities. As such, it is not easy to determine where work is slowing down for any given delivery path. The need to understand and improve this network is the genesis for implementing Value Stream Management.

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