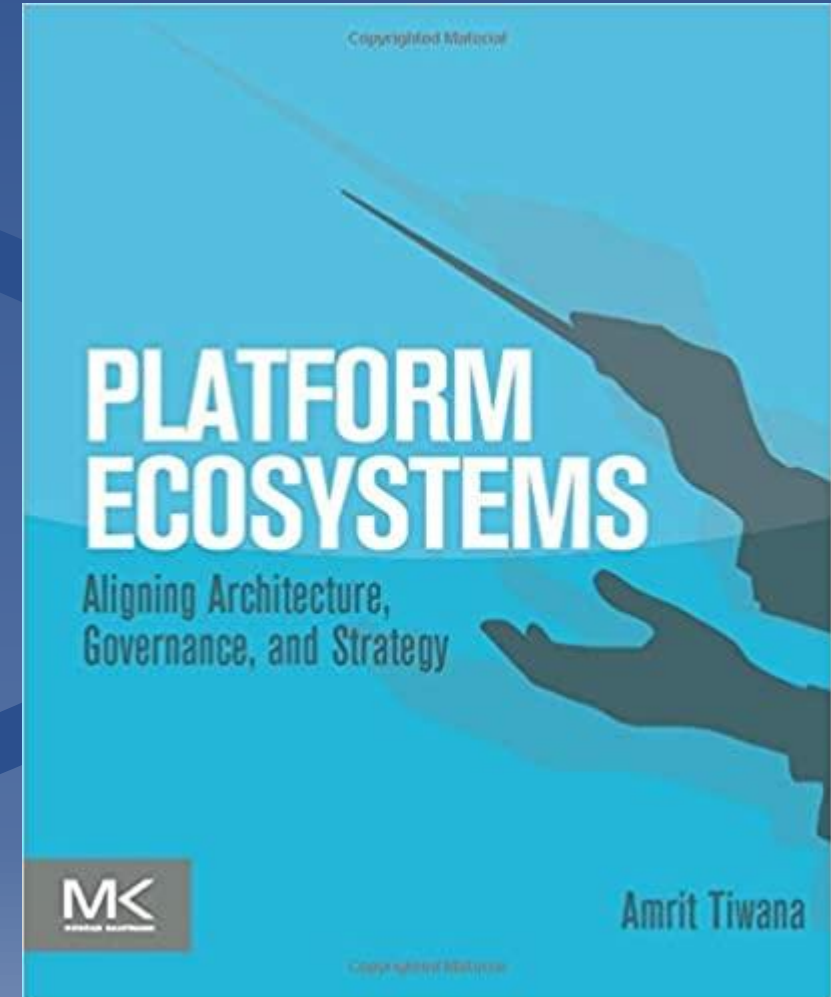
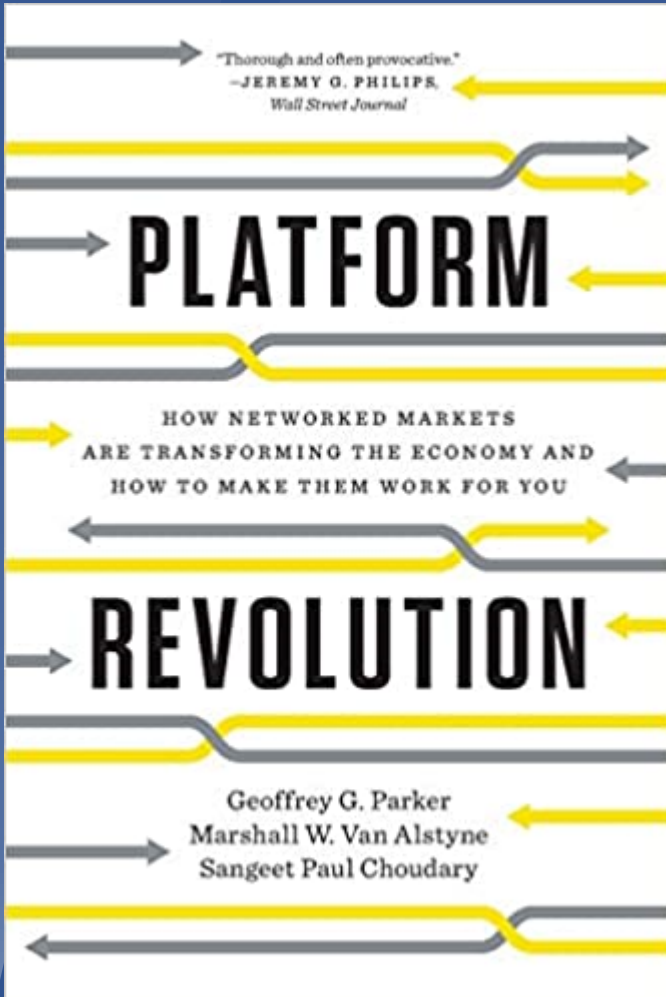




# Eco-System Concepts and Architecture

D. Vanderbist 06/01/2020

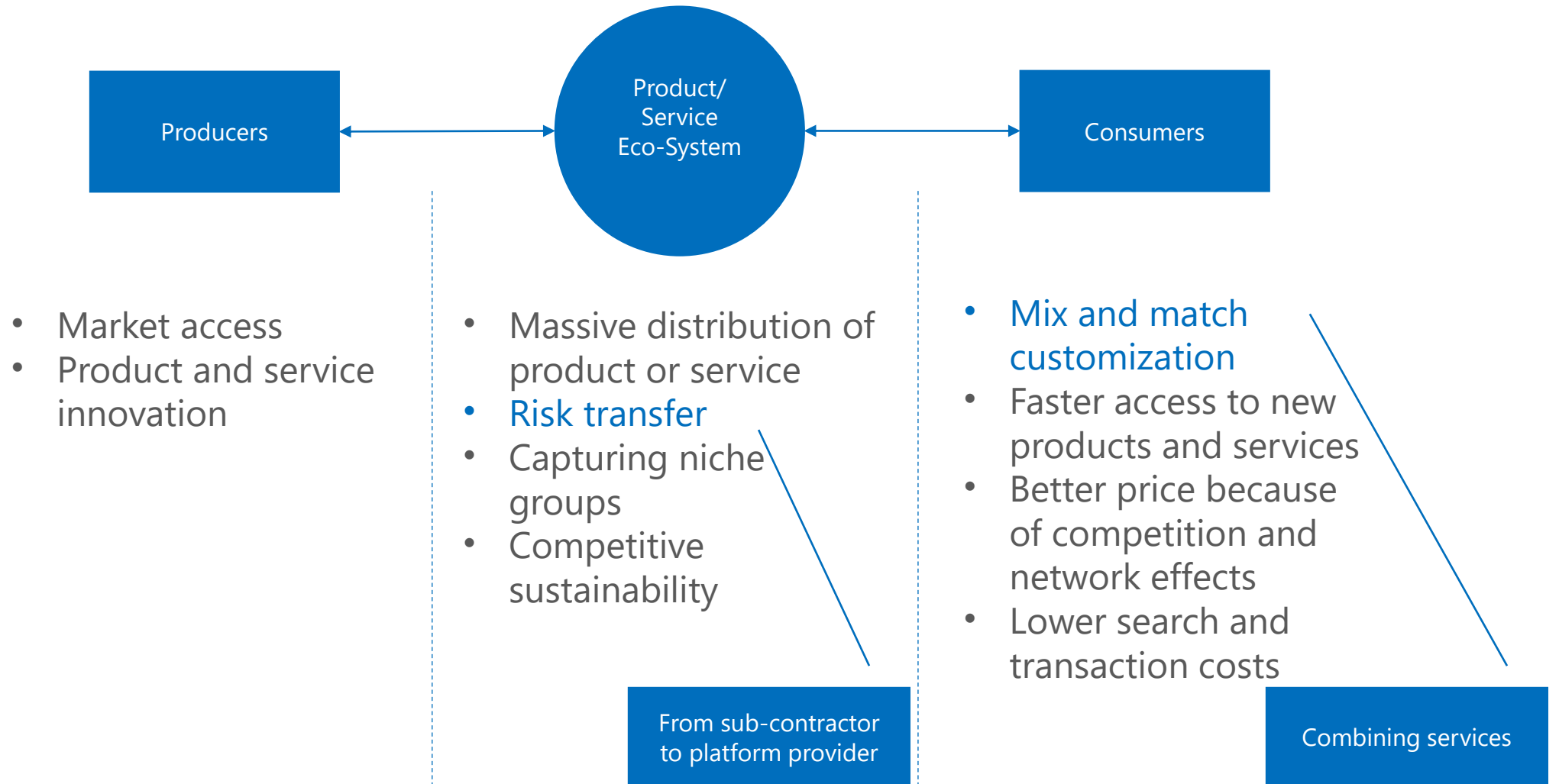
# References





# Eco-System Concepts

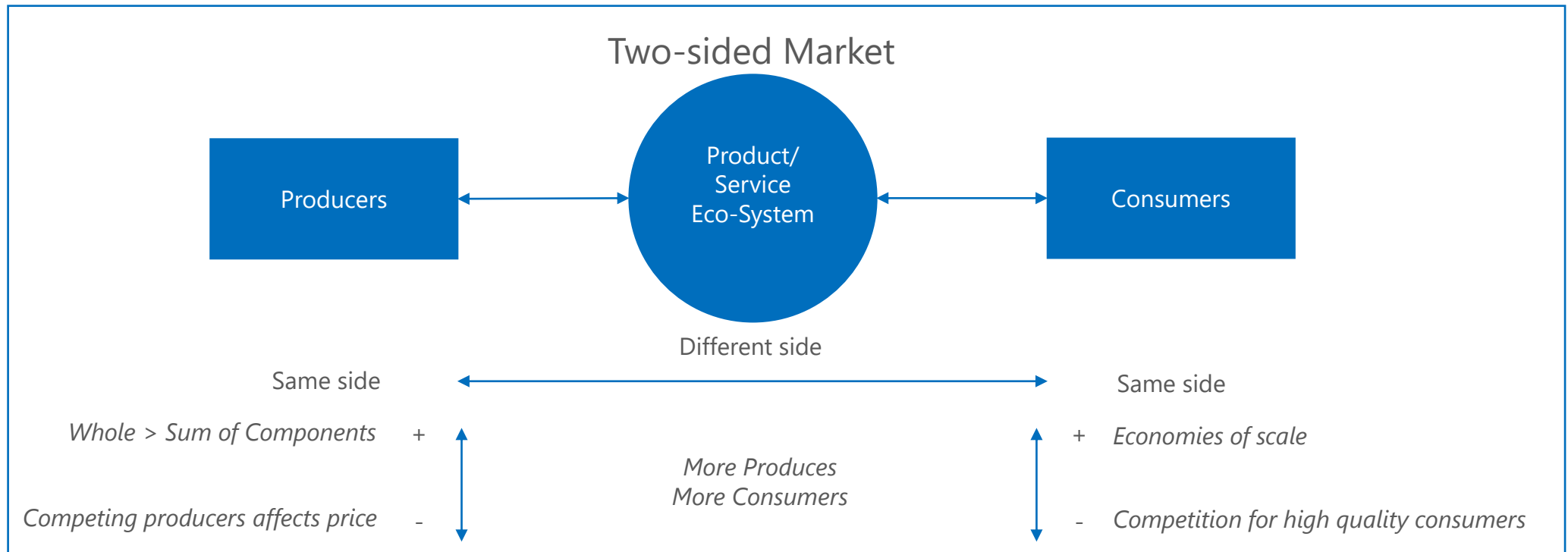
# Eco-Systems: Value Proposition



# Eco-Systems: Introduction

## Network effects:

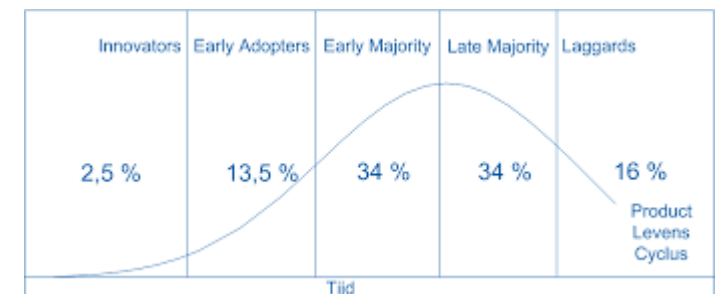
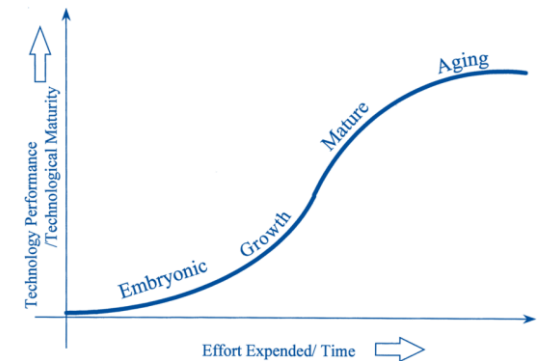
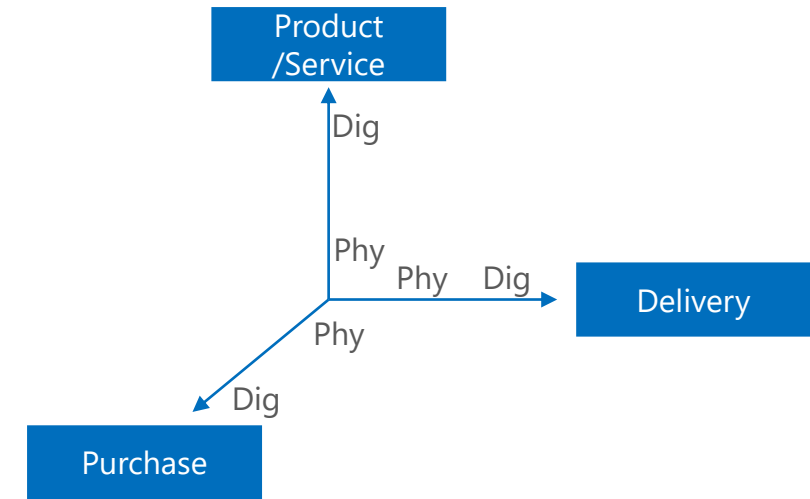
- Positive and negative network effects
- Same side and different side network effects



# Eco-Systems: Introduction

*The war on eco-systems and platforms!*

- Driver for eco-systems
  - **Digital maturity:** digitization of an activity or a process
  - **Product-Service maturity:** deepening specialization due to growing complexity of products and services
- Digital maturity: **physical vs. digital**
  - What is the product or service: physical or digital?
  - How is it purchased: physically or digital?
  - How is delivered: physically or digital?
- Product – Service maturity:
  - Phase of the S-curve: introduction, ascent, maturity, decline
  - Diffusion among the end-users: geeks, early adaptors, early majority, later majority, laggards
  - Emergence of a **dominant design**: pre- or post- emergence

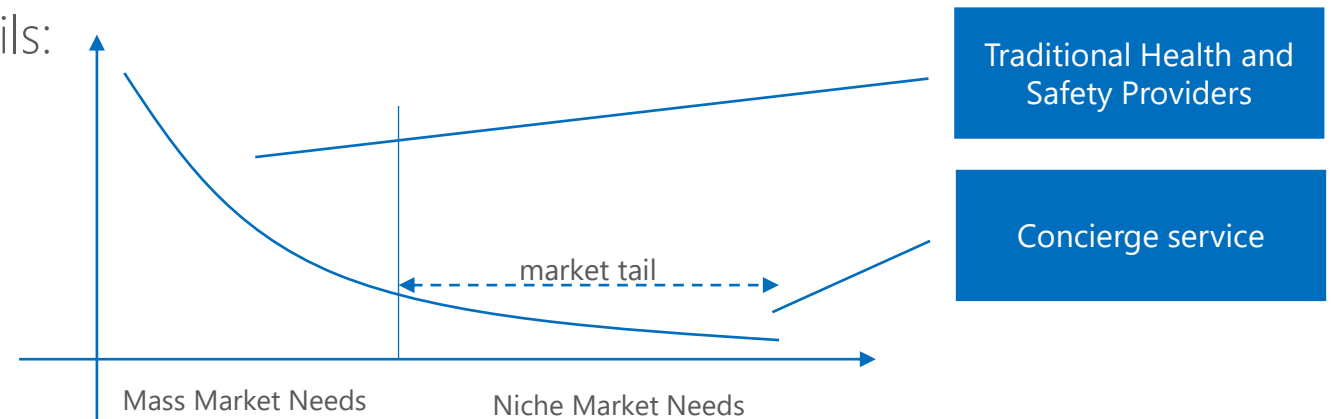


Concierge service dominant organizational structure or competitor?

# Eco-Systems: Opportunities

Good eco-system opportunities when ...

- ... two clear distinct market sides exist: consumer – producers, buyer – sellers
- ... there are unexploited long market tails:

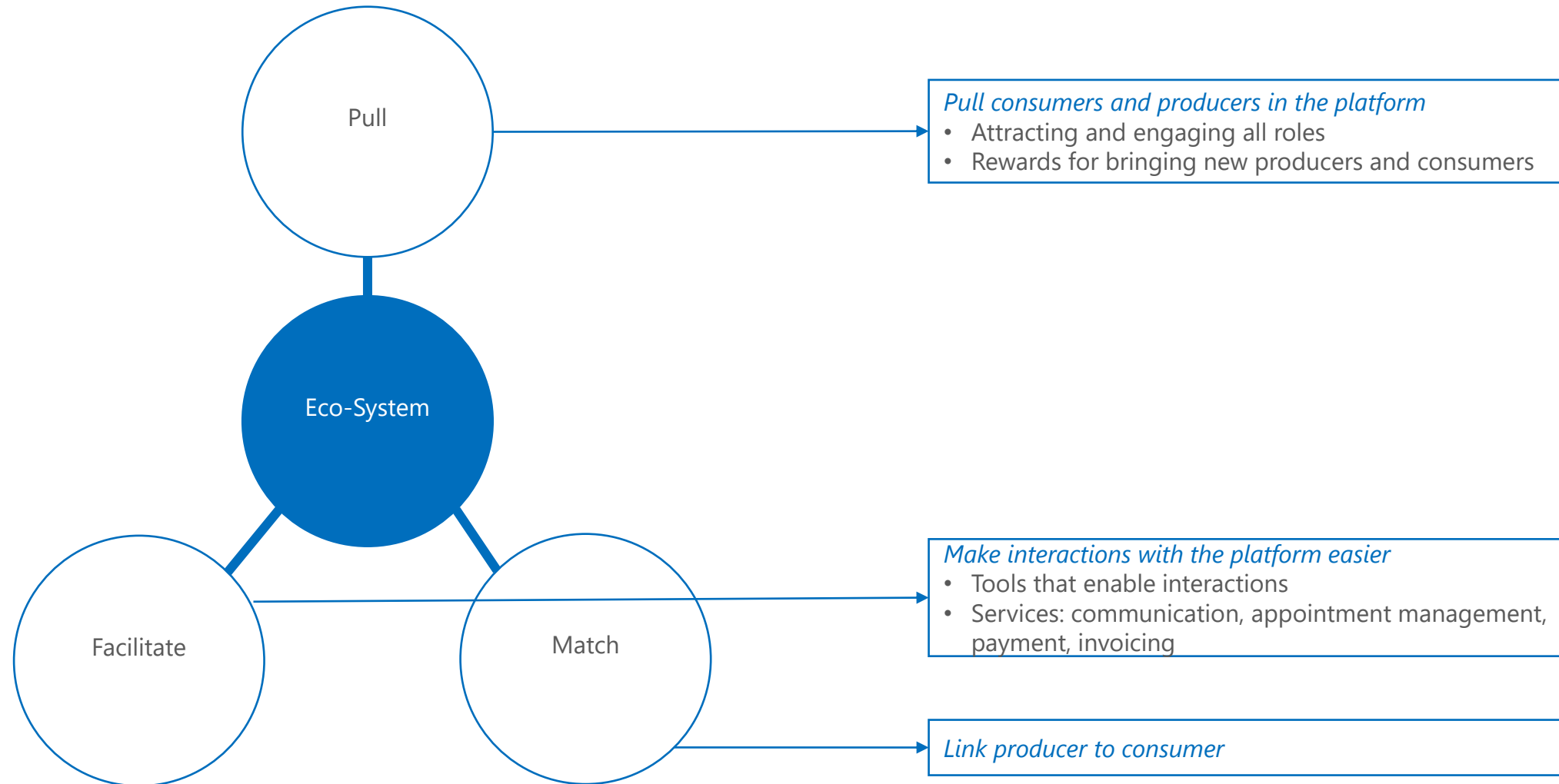


- ... one-side is already on board
- ... there are existing cross-side network effects
- ... multi-homing costs are substantial

But eco-systems are only sustainability when the product or service is ...

- Valuable?
- Rare?
- Imitable?
- Non-Substitutable?

# Eco-System: Evolution





# Eco-Systems: Building Blocks - Value & Interactions

- An eco-system is a marketplace for the exchange of services.

- The core unit value is what will scale when the platform scales
- Business design starts with the core unit value. This is the equivalent of traditional process reengineering where we look at the product produced

- For standardized services:

*The core unit of value for producers and consumers is the value generated by the service*

- For non-standardized service;

*The core unit of value is generated from bringing consumer and producer together*

- Core interactions are transactions based on the core unit value and involve:

- Information
- Good/Service
- Currency

combination of at least two, but all three is possible as well. In extreme cases, one: swapping information or swapping goods/services or swapping currencies

- Core interactions are ....

- Creation: supplier offering
- Curation: enhance the quality of the interaction via reviews and voting
- Customization: increase level of relevancy of the interactions
- Consumption: customer demand

Risk!

- Eco-system failure is when of the core interactions is missing no supply, wrong quality, wrong type, no demand

# Eco-Systems: Building Blocks - Filters

- Filters are mechanisms to select and to provide relevant core unit of values.
- Filters are needed because there is an overlap between producers and consumers in the eco-system.
- Filters will limit consumer's data to relevant consumers for producers, and producer's data to relevant producers for consumers.
- Filters can be based on intent (active) or context (passive).

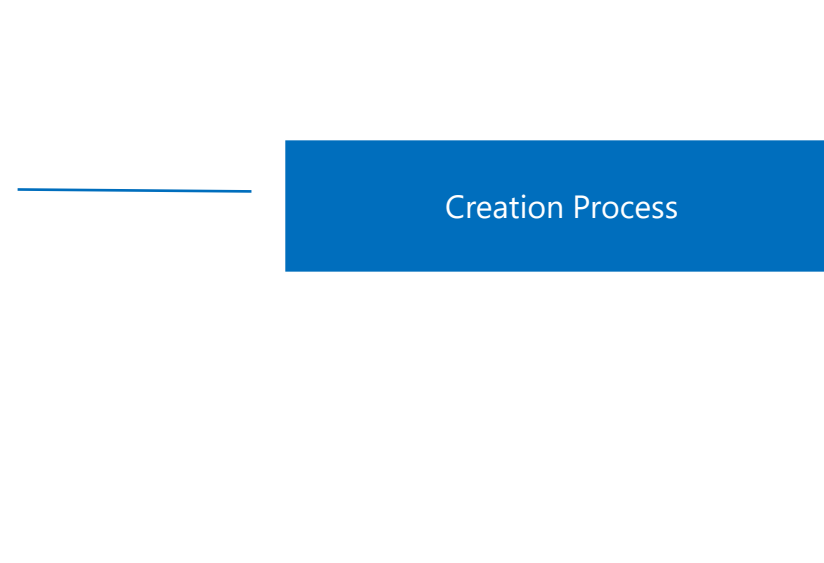
The eco-system should support activities ...

- ... to help the producers and consumers to create relevant filters
- ... to deduce relevant context for them

Matching  
Consumer – Producer - Service

# Eco-Systems: Core Unit Value/ Core Interactions

- Platform creation steps
  1. Identify the core unit of value
  2. Build core interactions around the unit of value
  3. Design the platform around the core interactions: features and functionalities to combine core unit and core interactions (Technical interfaces)
  4. Define the minimal viable platform/eco-system and build incrementally towards this goal: MVPL/MVE comparable to the agile MVP concept



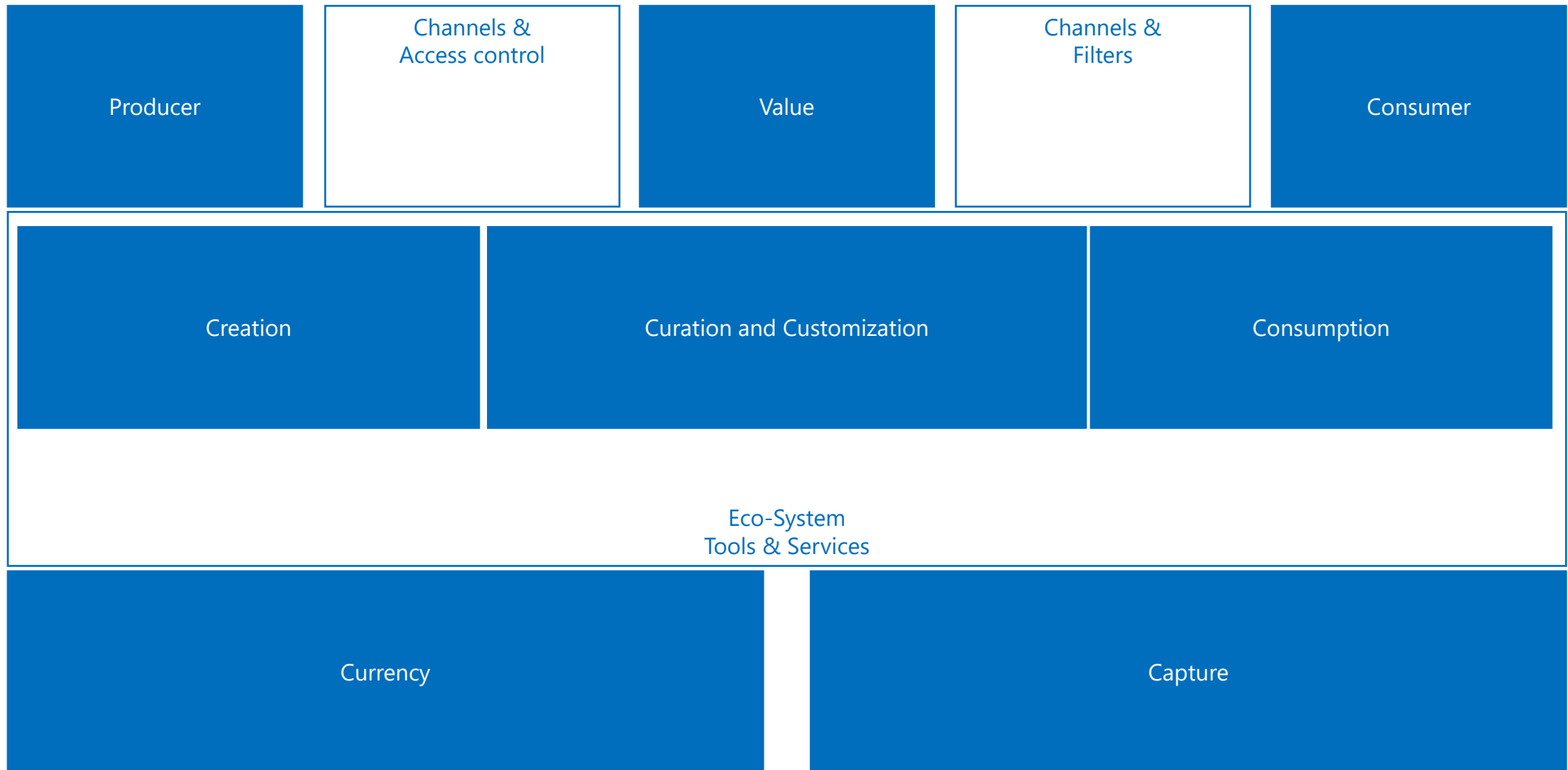
# Eco-Systems: Platform Manifesto

Parts of the Platform Manifesto:

Disruptive Business Model

- The **eco-system** is the new supply chain
- **Data** is the new dollar
- **Community management** is the new HR
- **Curation and reputation** is the new quality control
- **User journeys** are the new sales tunnels
- **Data science** is the business process optimization
- **Social feedback** is the new commission
- **Plug-and-play** is the new business development


# Eco-System: The Platform Canvas Model





# Eco-Systems Challenges

# Eco-Systems: Chicken-Egg Challenge

- **Chick-Egg problem:** two-sided platform has a **boot-strap issue** as either side wants the other side to exist first
- Boot-strap resolution strategies: 
  - **Follow-the-rabbit:** use a non-platform demonstration project to model success
  - **Piggyback:** connect an existing user base to the platform
  - **Seeding:** create value units that are at least relevant to one side of the platform
  - **Marquee:** provide incentives to attract members of a key user set onto the platform
  - **Single-Side:** create products/services that benefit a single set of users convert business into a platform business
  - **Producer evangelism:** attract producers who can induce their customer to become users of the platform
  - **Big-bang adoption:** one or more push marketing strategies to attract high volume of interest and attention to your platform
  - **Micro-market:** small market of member already engaging in interactions and build effective matching strategies

# Eco-Systems: Other Challenges

Challenges:

- **Red-queen effect:** the increased pressure to adapt fast to survive as competition's evolutionary pace increases
- **The penguin problem:** adopters with strong network effects will hesitates to join the platform
- **Multi-homing problem:** participant active in multiple equivalent eco-systems because either
  - they have-to: market demands it (opportunity costs and sunk costs of the platforms)
  - they can: reducing the market scale and potential (subsidize or lower cost to make entry attractive)
- **Lock-in problem:** it is very costly or difficult for participants to change eco-systems

General Strategies:

- Reduce **entry friction**
- **Incentivize** entry and participation
- **Maximize growth and scaling:** speed to market potential, tipping point to reach a critical mass
- **Add skin in the game:** as platform provider use the platform yourself as consumer or producer (eat your own dog food)





# Eco-Systems: Barriers / Trustworthiness

## Barriers:

- Entry barriers:  
*investment of time/money/reputation from consumers/producers to enter and participate*
- Network effects
  - Are there enough network effects to be an attractive eco-systems
    - *Transaction volume*
    - *Reputation of the platform*
    - *Influence of consumers/producers*

## Trustworthiness:

- Confirmed identities of the participants
- Centralized moderations in case of conflicts
- Centralized feedback systems on consumers and producers
- Culture and ethics

Quality Labels and Certifications

# Eco-Systems: Characteristics

## Characteristics:

- Low scale economies: substantial scaling effects achieved at low volumes
- Extensive customization by end-users
  - Risk of over-customization: idiosyncratic end-users needs
- Segmented markets
- High network effects
- Revenue-stream revenue model
- Variable cost is most important cost (OPEX)
- Value-driven pricing models
- Starting bottleneck is attracting end-users

It should scale at low volumes.  
If not, it is risky!

# Eco-Systems: Governance

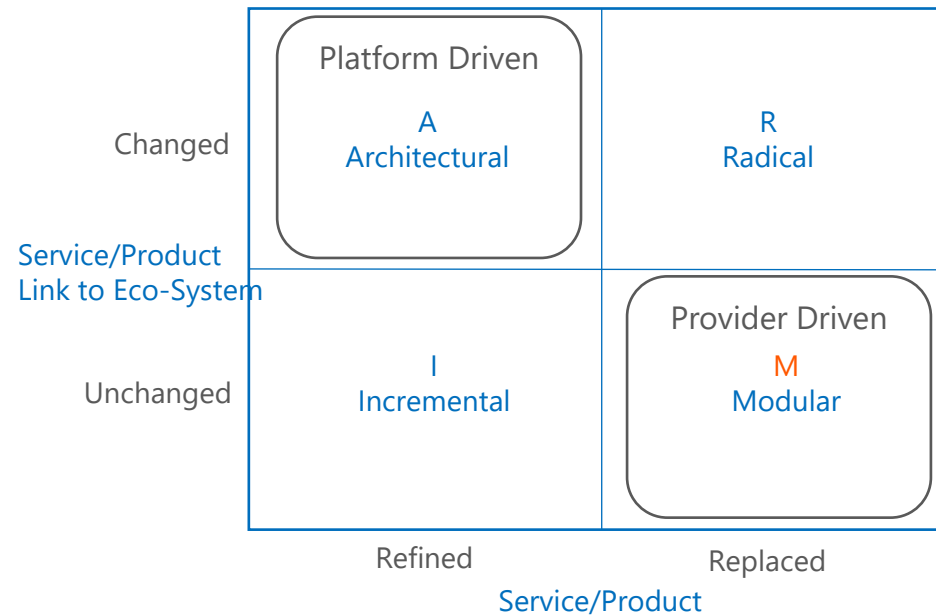
The Eco-system governance plan defines:

- **Gatekeeping:** pre-defined rules to enter the eco-system:
  - Joining: central or de-centralized decision, quality gates
- **Pricing and Process:** the eco-system's business model and operations
  - Subsidizing model or asymmetric pricing vs, symmetric pricing
  - Access via subscription mode vs. usage pricing
  - Pie splitting i.e. revenue and costs splitting between participant and eco-system owner
- **Metrics:** to measure the eco-system's performance
- **Relational:** the eco-system's ethics, privacy and behavior related to transaction and participants

Central management is ok  
Preferable automated  
to allow for fast scaling

# Eco-systems: Product/Service Changes

Product/Service relation with Eco-System





# Eco-Systems Monetization & Metrics

# Eco-systems: Monetization – Fees - Charging

## Monetization:

- Consumers: [access to platform value](#)
- Producers: [access to community and market](#)
- Consumer and Producers: [access to tools and services that facilitate the interactions](#)
- Consumer and Producers: [access to curation mechanism that enhance the quality of the interaction \(access to filters\)](#)
- Third-Party: [to access consumers or producers through advertising](#)

## Fees:

- Interaction fee:
  - Prospect / Lead fee
  - Transaction Commission
  - Subscription / Pre-payment / Saving-Up
- Access fee
- Prospect fee
- Enhanced access fee
- Enhanced curation fee

3rd payment system:  
Part of insurance contract

## Charging Schemas

- Charging all users vs charging one-side
- Charging vs subsidizing a side
- Charging most users subsidizing the stars
- Charging a segment of users a full price subsidizing more price sensitive segments
- Charging to signal information on quality or reputation

## From free to fee:

- Avoid charging for something that was free before
- Avoid reducing access to something that was free before
- Strive to create new additional value to justify the charging
- Consider potential monetization strategies when designing your platform



# Eco-systems: Metrics

## Short-Term:

- **Resilience:** up-time / down-time
- **Scalability:** % cost increase / % user increase
- **Composability:** integration effort in costs and time

## Mid-Term

- **Stickiness:** time spent by user on the platform / available time & number of transactions / time
- **Platform synergy:** number of transactions generated by the platform for certain supplier / total number of transactions for certain supplier
- **Plasticity:** the degree sub-systems deliver functionality they were designed for / features added

## Long-Term:

- **Envelopment:** functionality added to the eco-system by one of the partners that is available in an adjacent market with overlapping users i.e. % of new functionality users / total users
- **Durability:** endurance in a given marketplace or user attrition levels
- **Mutation:** the creation of spin-off platform with some of the elements of the original platform but with a different purpose i.e. % of carry-over users from existing to spin-off

influences

influences

influences



# Eco-systems: Metrics

Start-Up phase:

- **Liquidity**: enough transactions because enough consumers and producers
- **Matching quality**: high quality of matching consumers to producers

Growth phase:

- **Producers-to-consumers** ratio or **Producers-to-active-consumers** ratio
- Consumers: **search and buy frequencies**, **conversion rates** of interests into purchase

Maturity phase:

- **Innovation metrics**:  
number of new core features, number of new features, number other changes / total platform changers





# Eco-Systems Architecture

# Eco-systems: Architectural Basis

Complexity:

- Partitioning: decomposition into **autonomous sub-systems**
- System integration: making sure all building blocks are there to make a **comprehensive whole**
- Mirroring principle: the eco-systems **governance must be aligned with the system's architecture**

Traditional layered architecture:  $\xrightarrow{\text{... enhanced with ...}}$  Advanced architecture:

- Presentation logic } = *Network = Market Place*
- Application logic } = *Infrastructure*
- Data access logic
- Data storage = *Data*

- Micro-services
- Cloud hosting



# Eco-systems: Architectural Basis

Assumes maximal automatization  
i.e. a Long-Term View

Desirable principles:

- Simple
- Resilient
- Maintainable
- Evolvable

General principles:

1. *Add to the platform what is **shared between users** and **highly reusable***
2. ***Low reusability and shared** must be technically updated first to become highly reusable*
3. ***Not shared should not be part of the platform.** Avoid feature envy issues without value proposition alignment.*

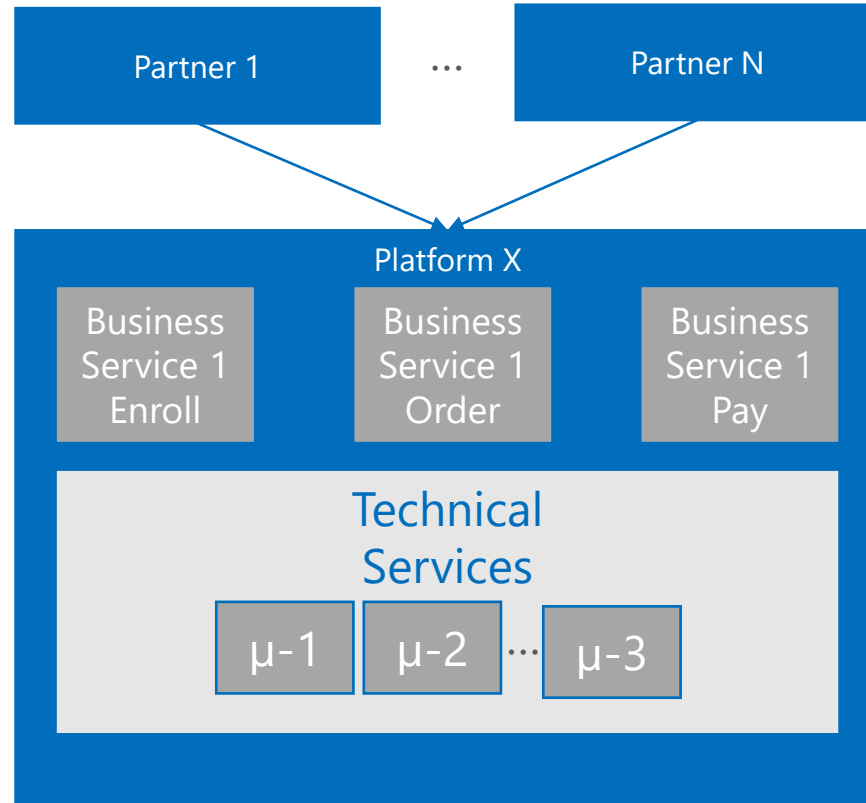
Desirable requirements:

- Scalable through **micro-services**: small autonomous functional components
- Stable **contract-based interfaces**: interchangeable components
- **Shared governance**: centrally managed and controlled by the eco-system's owner
- Regular updates: enforced update cadence, retire legacy functionality early rather than late (avoid backwards compatibility costs)

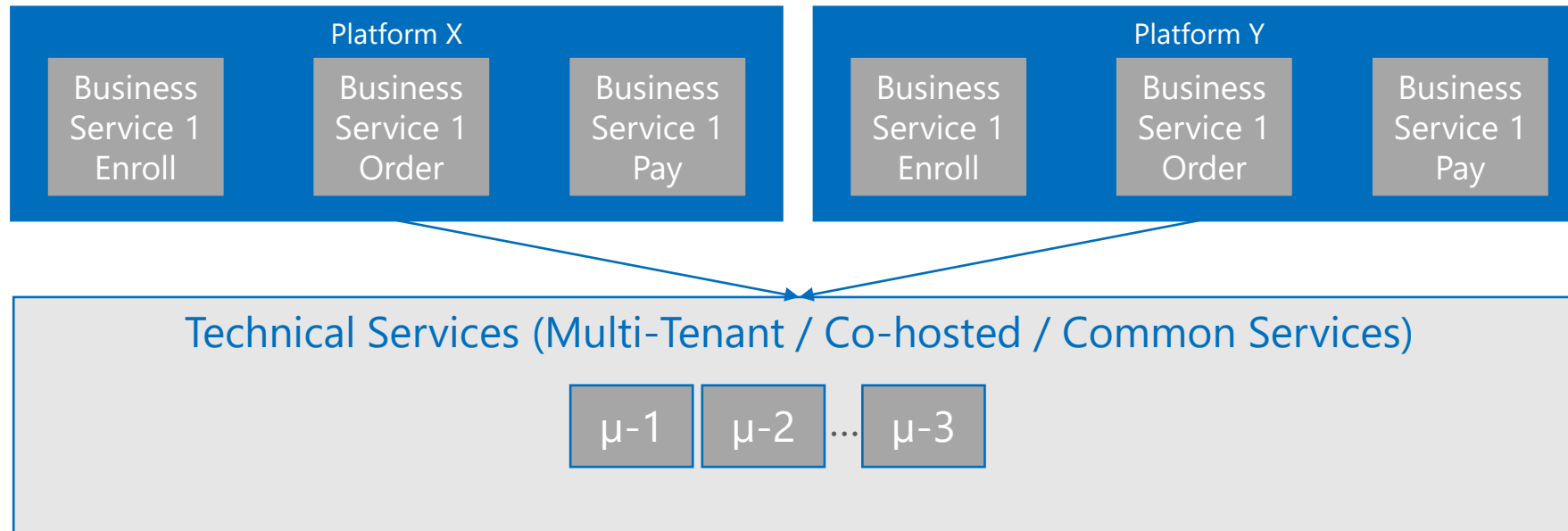
General principles:

1. *Standardized, documented and frozen interfaces*

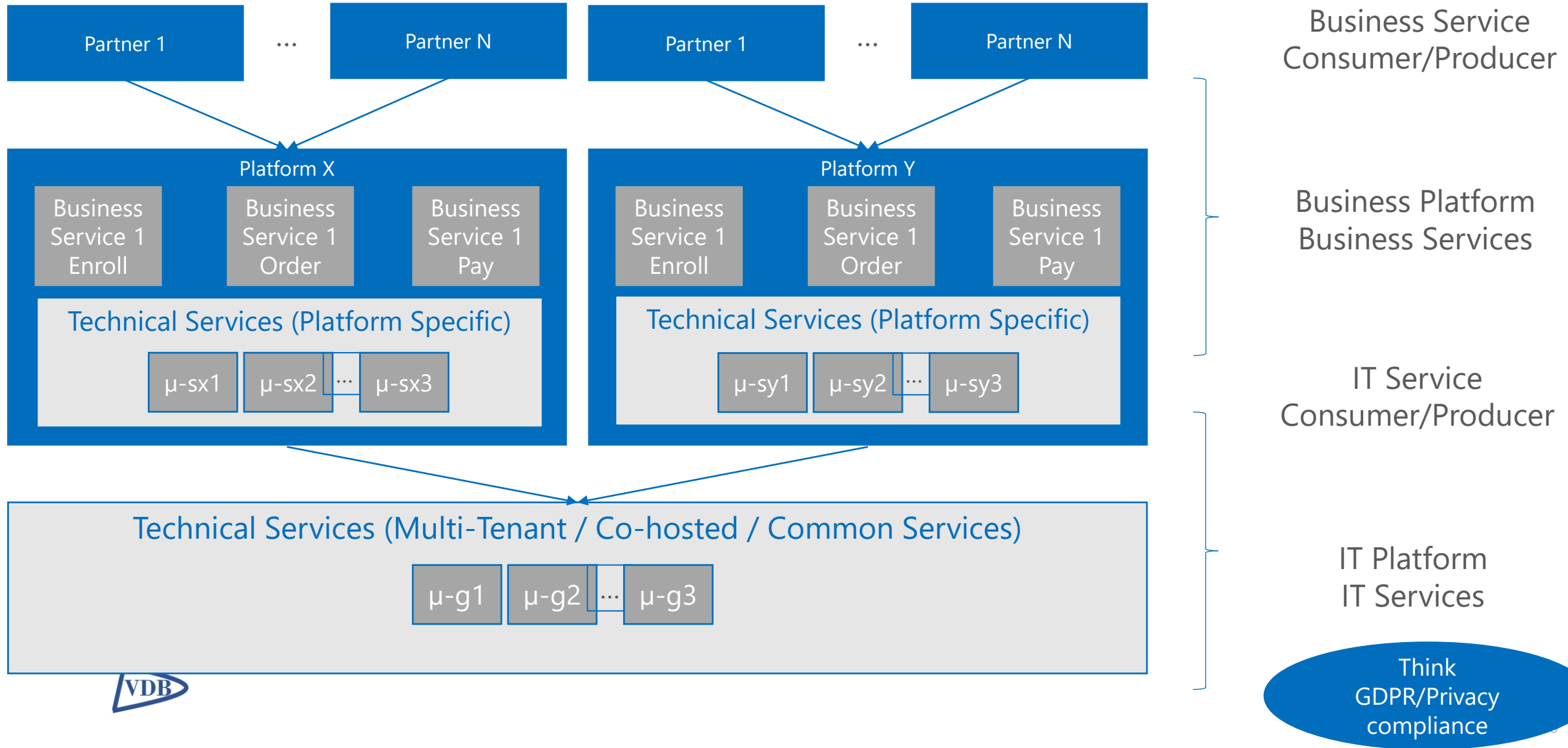
# Business Platform vs. It Platform vs Hybrid (1/3)



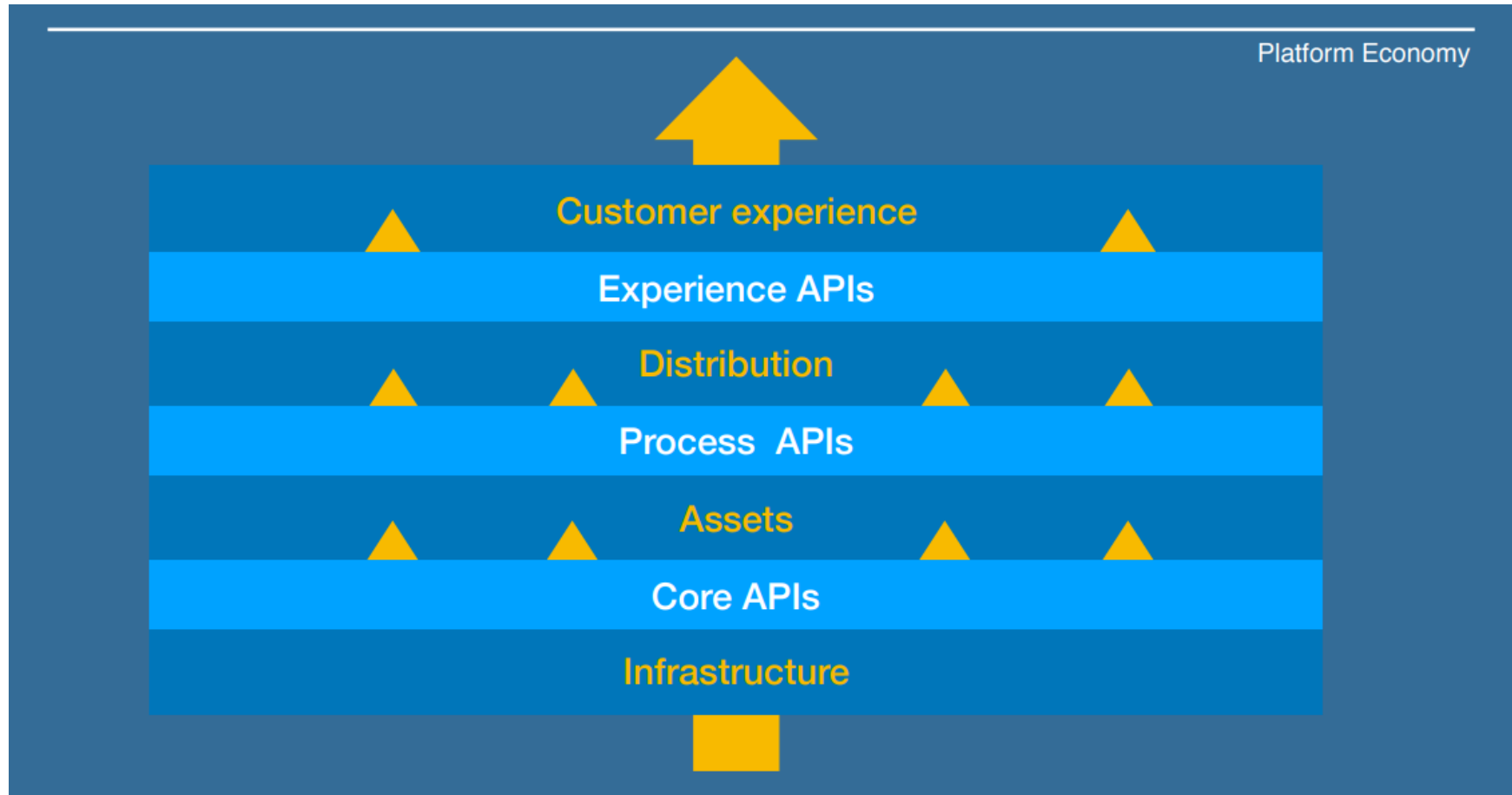
# Business Platform vs. IT Platform vs Hybrid (2/3)



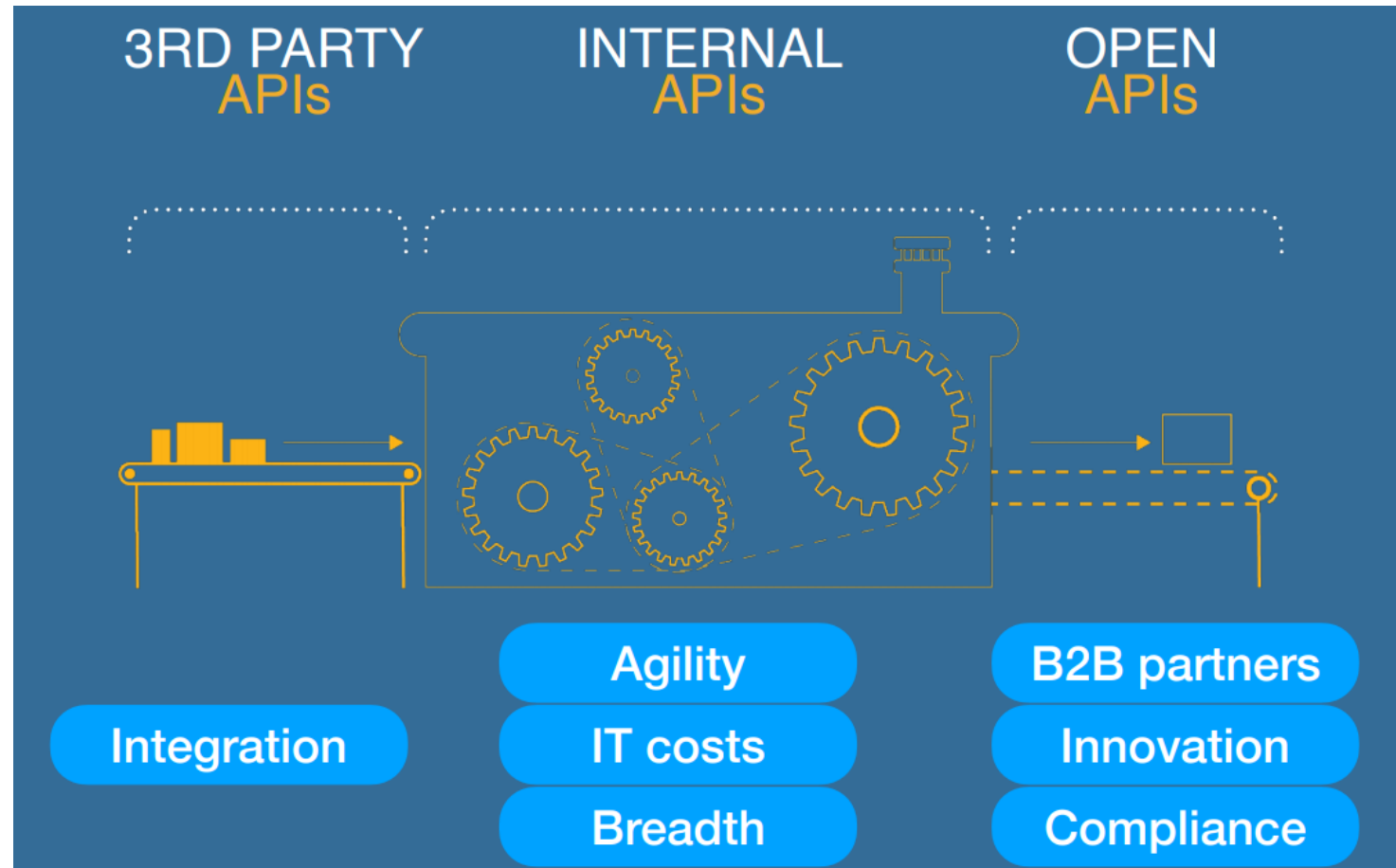
# Business Platform vs. It Platform vs Hybrid (3/3)



# API's

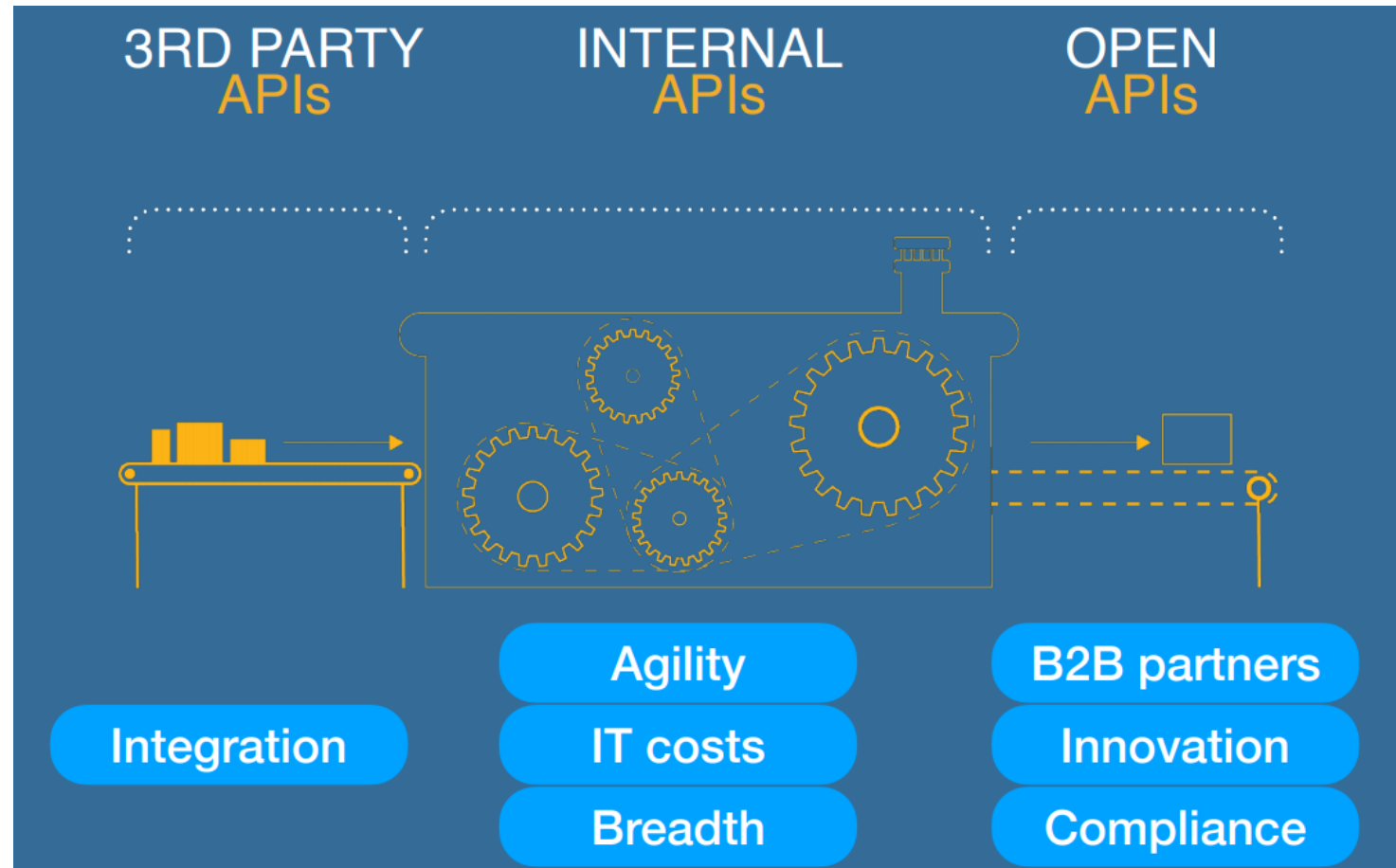


# API's





# API's



# Eco-System Business Processes

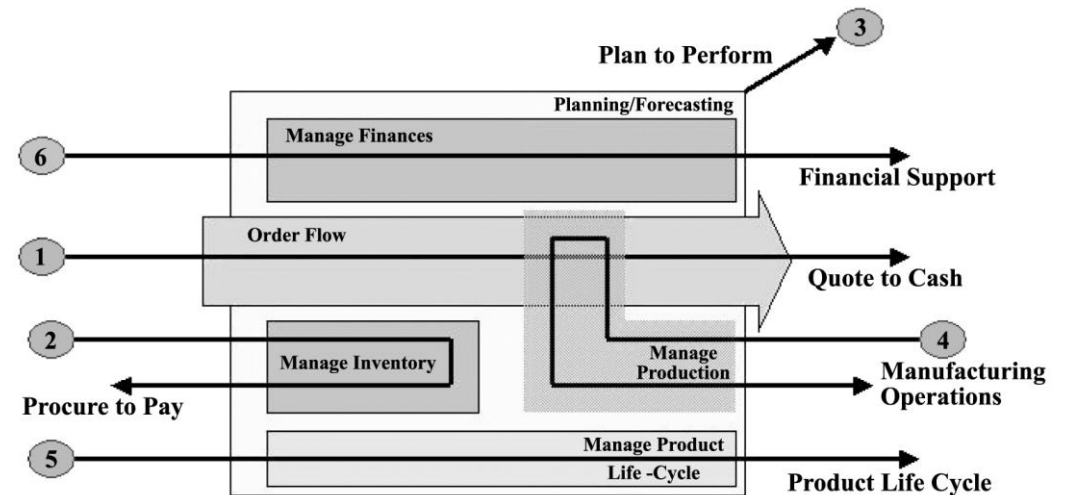
# Process Architecture: High-Level Process Model























## Core Processes:

1. Concept-to-product
2. Market-to-customer
3. Order-to-cash, and
4. Demand-to-supply

## Supporting Processes

5. Procure-to-pay
6. Invest-to-divest
7. Maintain-to-improve
8. Hire-to-retire, and
9. Finance-to-manage

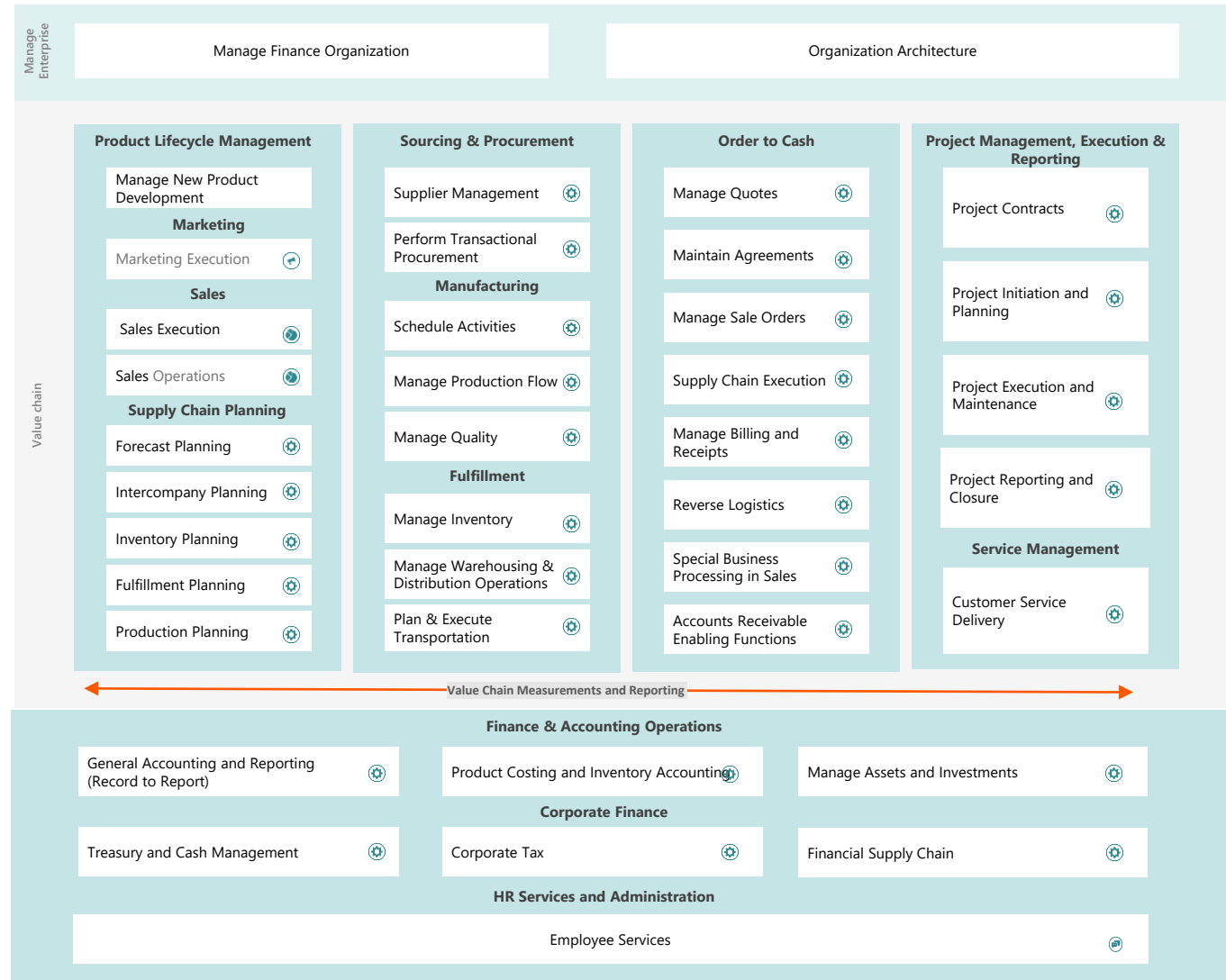


	Product Life Cycle	Order to Cash	Procure to Pay	Record to Report	Hire to Retire
Strategy / Planning	Evaluate Research need, feasibility and preparation	Establish goals and develop consumer and payer sales strategy	Strategic Sourcing	Develop Enterprise Strategy & Governance	
	Define Innovation Strategy	Develop marketing channel strategy		Strategic Planning or Shareholder Value Targeting	
	Identify innovation opportunities	Develop customer offers and value proposition		Enterprise Performance Management	
		Develop marketing communication strategy and plan			
Management	Establish collaborative groups	Monitor sales 	Manage Vendors and Vendor Data 	Finance Function Management 	Organization Management 
	Manage research and initiate research study	Create broker / agent sales training and mentoring		Manage Items, Categories, and Contracts 	Planning, Resource Allocation and Forecasting 
	Manage policy and processes		Customer Service Management 		Manage Supplier Catalog
	Demonstrate Feasibility	Management and Governance of existing customer relationship 	Payroll 		
	Product Development				
	Scale-up the product				
Transact	Conduct research study	Manage sales processes and operations 	Sourcing Requisitions 	General Accounting and Reporting (Record to Report) 	HR Services and Administration 
	Analyze Study Data		Purchasing Contract 		
	Manage Research regulatory and funding Reporting	Provide support for finalizing sale	Manage Requesting for Catalog Items 	Fixed Asset Accounting 	
	Present research	Provide customer billing inquiry 	Item Inspection	Product Costing and Inventory Accounting 	
	Launch the product		Manage Inventory 	HR Operations and Support	
	Roll-out the product	Measure customer satisfaction 	Process Goods Return 		Travel and Expenses Reimbursements 
	Manage Performance				

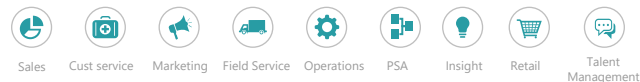
	Order to Cash	Procure to Pay	Manufacturing & Fulfillment	Finance Accounting & Ops	HR Services & Admin
Strategy	Manage New Product Development	Prepare Sales & Operations plan		Manage Finance Organization	
				Organization Architecture	
Management	Setup Sales Organization and Data	Create and Maintain Vendors	Set up Planning Master Data	Chart of accounts design	Maintain Travel Master Data
	Maintain Master data in Accounts Receivables		Generate and release MPS	Maintain Financial Dimensions	
	Manage Customer Contacts	Setup and maintain commodity pricing	Material Requirements Planning	Configure Account Structure	Maintain travel workflows
	Define and Apply Pricing or Discount Policies		Plant Capacity Requirements Planning	Setup cost calculations and structure	
	Variant Configuration Pricing	Safety Stock Planning	Setup Forecast Plans	Setup Master Plans	Set up Fixed Assets
	Manage marketing Campaign	Setup product compliance	Setup Coverage and Planning Rules	Manage sequenced master plan	
	Manage Customer Relationship and Agreement		Manage Quality	Kanban Quantities Planning	Set up Consolidation Company
	Manage Sales Quotations	Define Warehouse Organizational Structure		Set up Warehousing Related Data	Maintain fixed assets
	Manage Customer Credit	Vendor Performance Evaluation	Set up Intercompany Planning Master Data	Budgetary Control	Maintain Travel and Expense Policy
	Manage Incentives and Commissions		Warehouse Min/Max Planning	Perform Financial Reporting	
Transact	Manage Marketing Calls	Managing Requisitions and quotations	Develop demand forecast	Treasury and Cash Mgmt	Create and Submit Travel Requisition
	Manage Sales Opportunities	Create and maintain purchase agreements	Create and Update Forecast	Perform Tax Accounting and Reporting Activities	
	Manage Lead Generation	Create and maintain vendor trade agreements	Schedule Activities	Collections Management	Create and process expenses
	Manage Sales Activities	Manage Planned Purchase Orders	Produce Products	Process intercompany payables and receivables	
	Create and Manage Prospect	Manage Purchase Order Processing	Schedule production	Settle/unsettle ledger accounts	
	Create and Manager Customer		Produce Products - Discrete	Perform Period-End Closing Procedures	
	Create Sales Quotations	Manage Receipts and Confirmations	Produce Products - Process	Perform Consolidation Process	Process Cash Advance Request
	Create Sales Order	Manage Quality in Procurement	Produce Products - Lean	Perform Inventory Recalculation and Closing	Process Expense Reimbursement Request
	Manage Availability Checking and Backorders	Manage Invoices	Receive and Put Away Goods	Acquire Fixed Assets	
	Process Picking	Process Payments	Transfer of Goods Between Locations within a Warehouse	Process Fixed Asset Depreciation	Process Reimbursements
	Process Packing Slip	Manage Inventory Adjustment	Pick, Pack and Ship Goods	Perform other asset transactions	
	Process Customer Invoices	Inventory inquiry and analysis	Manage Transfer Orders between warehouses	Perform Disposal of Fixed Assets	
	Process Receipts	Manage Inventory Status	Process internal replenishment	Create Daily Journal	
	Process Customer Returns	Process Inventory and Cycle Count	Plan and Execute Transportation	Manage Accrual Accounting	
	Process Customer Consignment Orders		Set up and Process Periodic or Recurring Journal	Process Allocation Journals	



# CROSS INDUSTRY CATALOG - LOM MAPPING



Dynamics 365



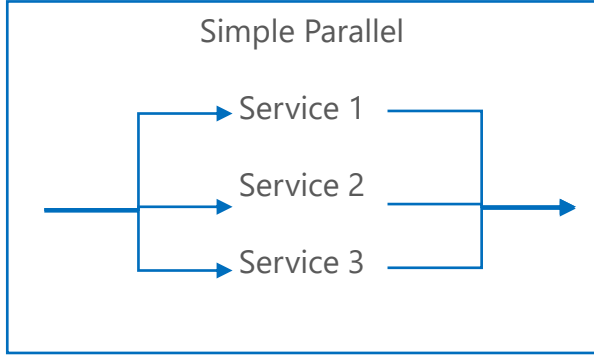
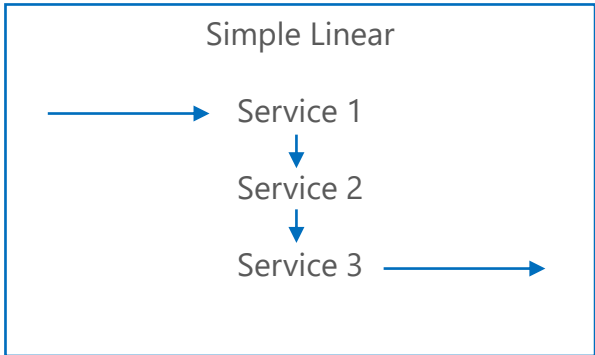


# Eco-Systems: Technical and Component Architecture

# Dynamic Contracting: Service Delivery Sequence

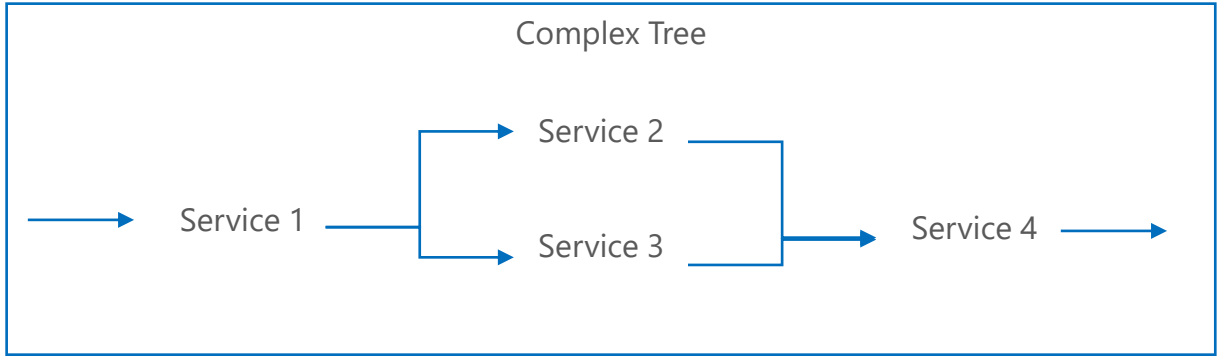
Service Delivery Sequence		
Service	Predecessor	Successor
Service 1	...	
Service 2	...	
Service 3	....	

Service Delivery Sequence		
Service	Predecessor	Successor
Service 1	N.A	Service 2
Service 2	Service 1	Service 3
Service 3	Service 2	N.A.



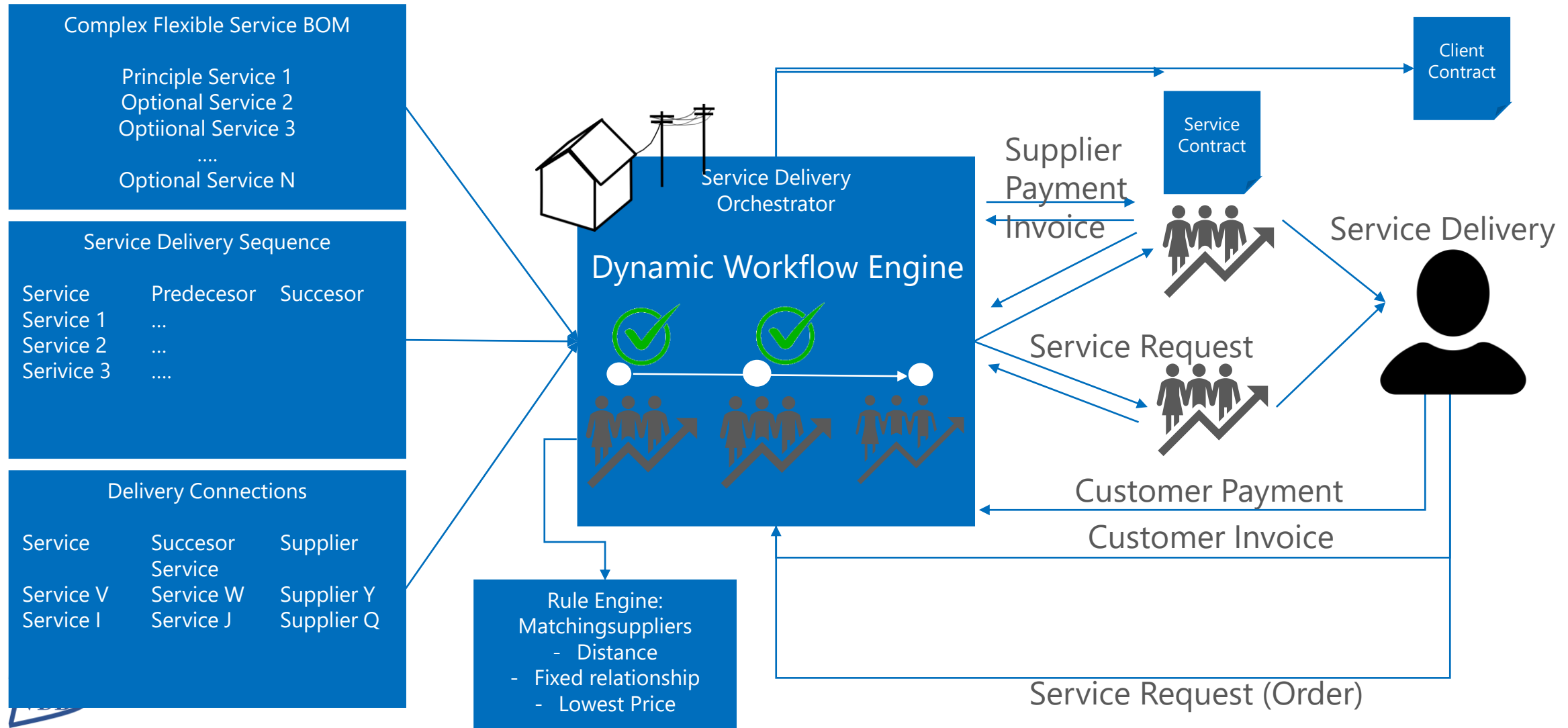
Service Delivery Sequence		
Service	Predecessor	Successor
Service 1	N.A	Service 2
Service 2	Service 1	Service 3
Service 3	Service 2	N.A.

Service Delivery Sequence		
Service	Predecessor	Successor
Service 1	N.A	Service 2, Service 3
Service 2	Service 1	Service 4
Service 3	Service 1	Service 4
Service 4	Service 2 Service 3	N?A

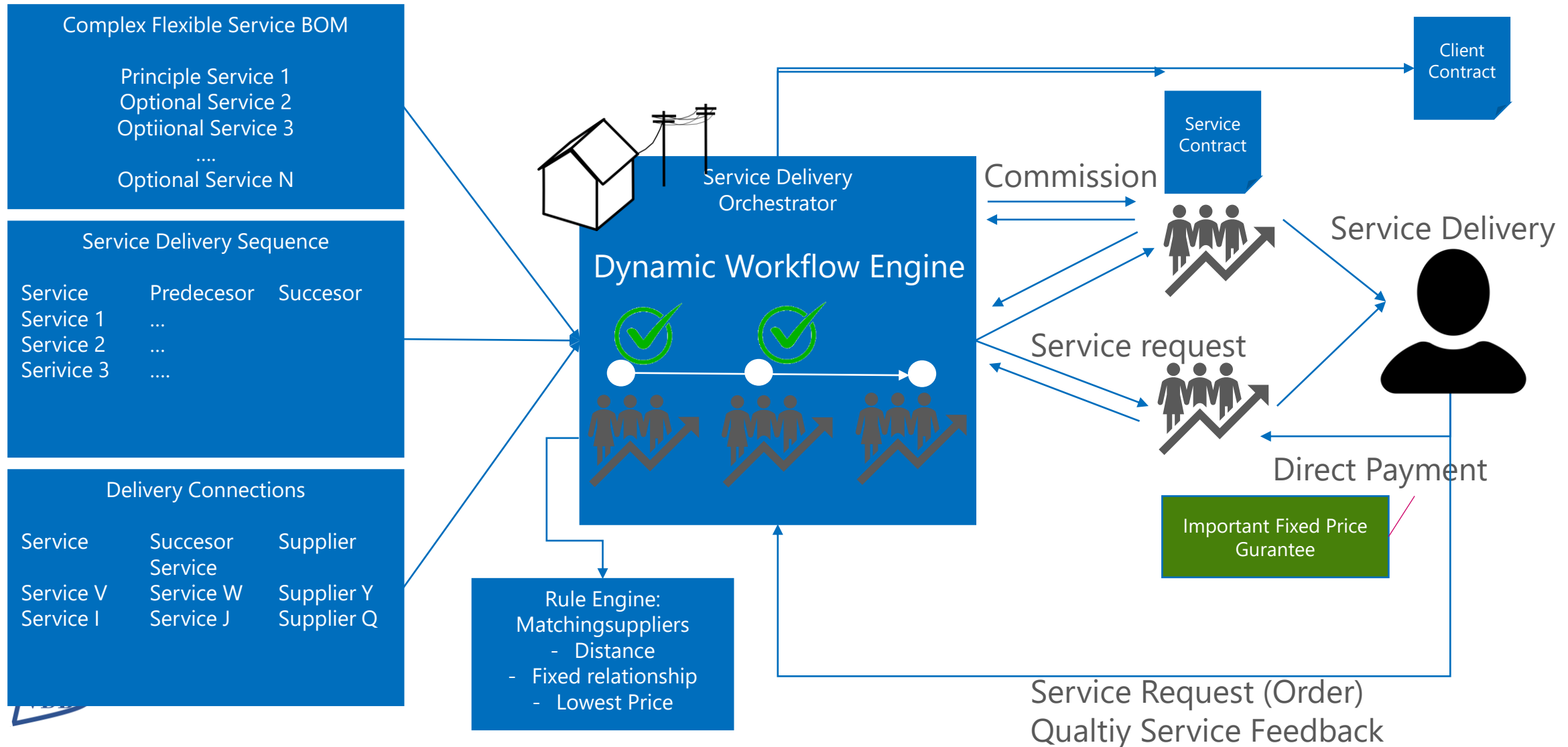




# Dynamic Contracting: Service Orchestrator

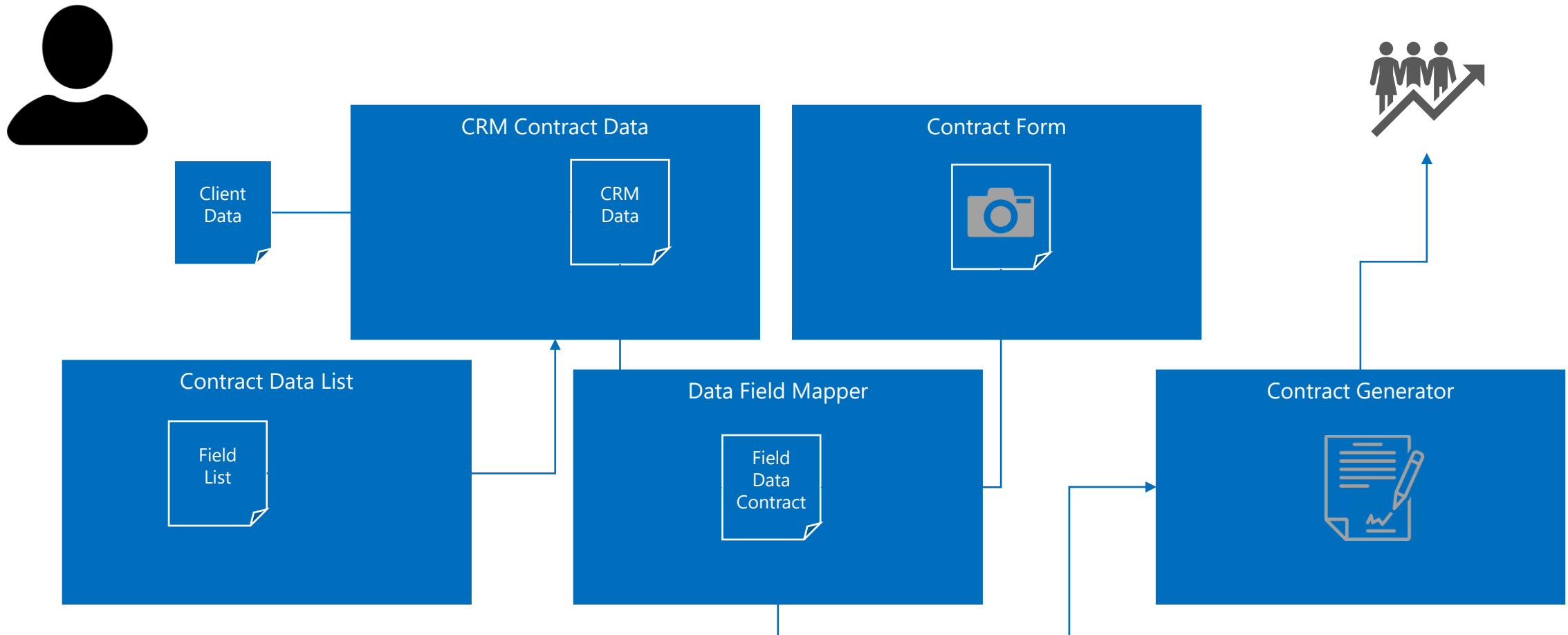


# Dynamic Contracting: Service Orchestrator



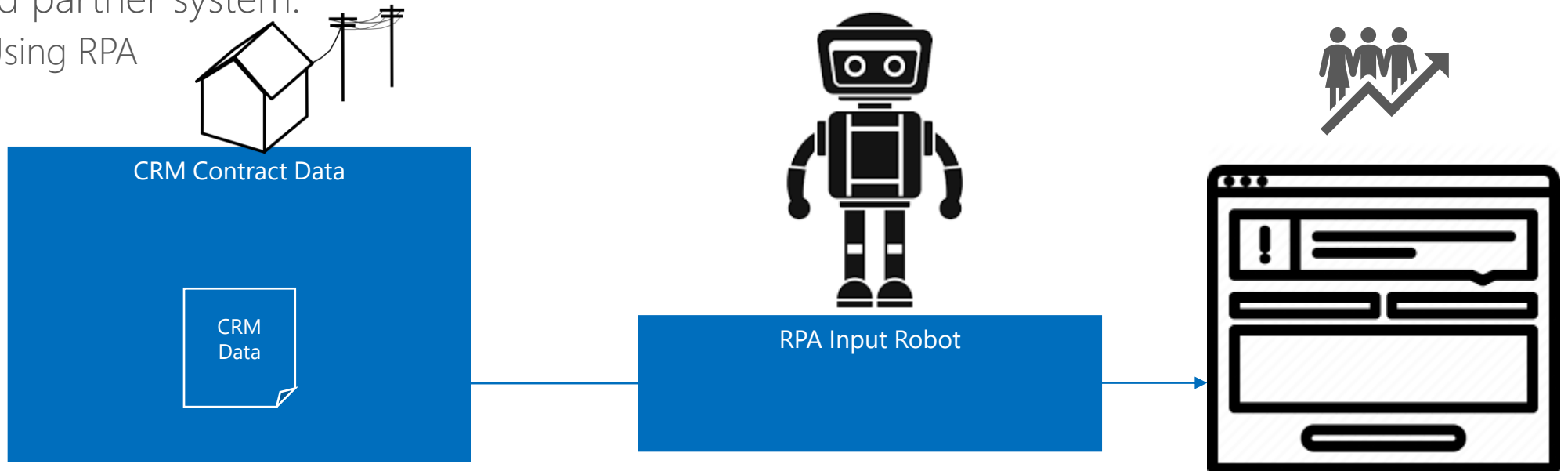
# Contract Management

- Paper contract generator:
  - Supplier contract/request/document generation



# Contract Management

- B2B Electronic communication:
  - XML Doc generation
- UI based partner system:
  - Using RPA



# Quality Label

