ISP Service Operations & Project Delivery

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ISP Service Operations

Title

- Three pillars of an Organization
- How they involved in service operations
- Service Operations
- Human factors influence & risk management on projects

ISP Operational Framework (Three Pillars)

1. Marketing / Sales
2. Operations / Technical
3. Finance / Accounts

*By treating each other as internal customers, all functions can deliver better **value** to external customers.*

ISP Operational Framework (Three Pillars)

1. Marketing / Sales

Acquire and retain customers.

- Customer acquisition
- Product/package design
- Promotions and pricing
- Customer relationship management
- Contract management
- Demand forecasting

- **Key Outputs to Other Departments**
- Customer orders
- Service requirements
- Installation location details
- SLA commitments
- Package details

ISP Operational Framework (Three Pillars)

2. Operations / Technical

Deliver and maintain network service quality.

- Network planning/execution
- Customer installation
- Network monitoring
- Incident management
- Maintenance
- Change management
- Capacity management
- Project Management
- Partner/Vendor/Supplier Management

- **Key Outputs**
- Service activation
- Network/Service availability reports
- Fault resolution
- Network change implementation

ISP Operational Framework (Three Pillars)

3. Finance / Accounts

Ensure financial sustainability/ perform financial Management

- Billing
- Revenue assurance
- Payment collection
- Vendor payments
- Cost control
- Financial reporting

- **Key Outputs**
- Customer invoices
- Payment status
- Financial analysis
- Procurement approval

Options for Increasing Contributions

Scenario	Sales	Operations Cost	Sales Cost	Finance Cost	Profit	Profit Change
Base Case	100%	65%	15%	10%	10%	—
Sales +10%	110%	71.5%	16.5%	11%	11%	+10%
Finance Cost −20%	100%	65%	15%	8%	12%	+20%
Operations Cost −10%	100%	58.5%	15%	10%	16.5%	+65% 🚀

Options for Increasing Contributions

Scenario	Sales	Operations Cost	Sales Cost	Finance Cost	Profit	Profit Change
Base Case	100%	60%	20%	10%	10%	—
Sales +10%	110%	66%	22%	11%	11%	+10%
Finance Cost −20%	100%	60%	20%	8%	12%	+20%
Operations Cost −10%	100%	54%	20%	10%	16%	+60% 🚀

Options for Increasing Contributions

		Marketing Option	Finance Option	Ops Option
		Increase Sales Revenue	Reduce Finance Cost	Reduce Ops Cost
	Current	50%	50%	20%
Sales	100,000	150,000	100,000	100,000
COGS	-80,000	-120,000	-80,000	-64,000
Gross Margin	20,000	30,000	20,000	36,000
Finance Costs	-6,000	-6,000	-3,000	-6,000
Subtotal	14,000	24,000	17,000	30,000
Tax at 15%	-2,100	-3,600	-2,550	-4,500
Contribution	11,900	20,400	14,450	25,500

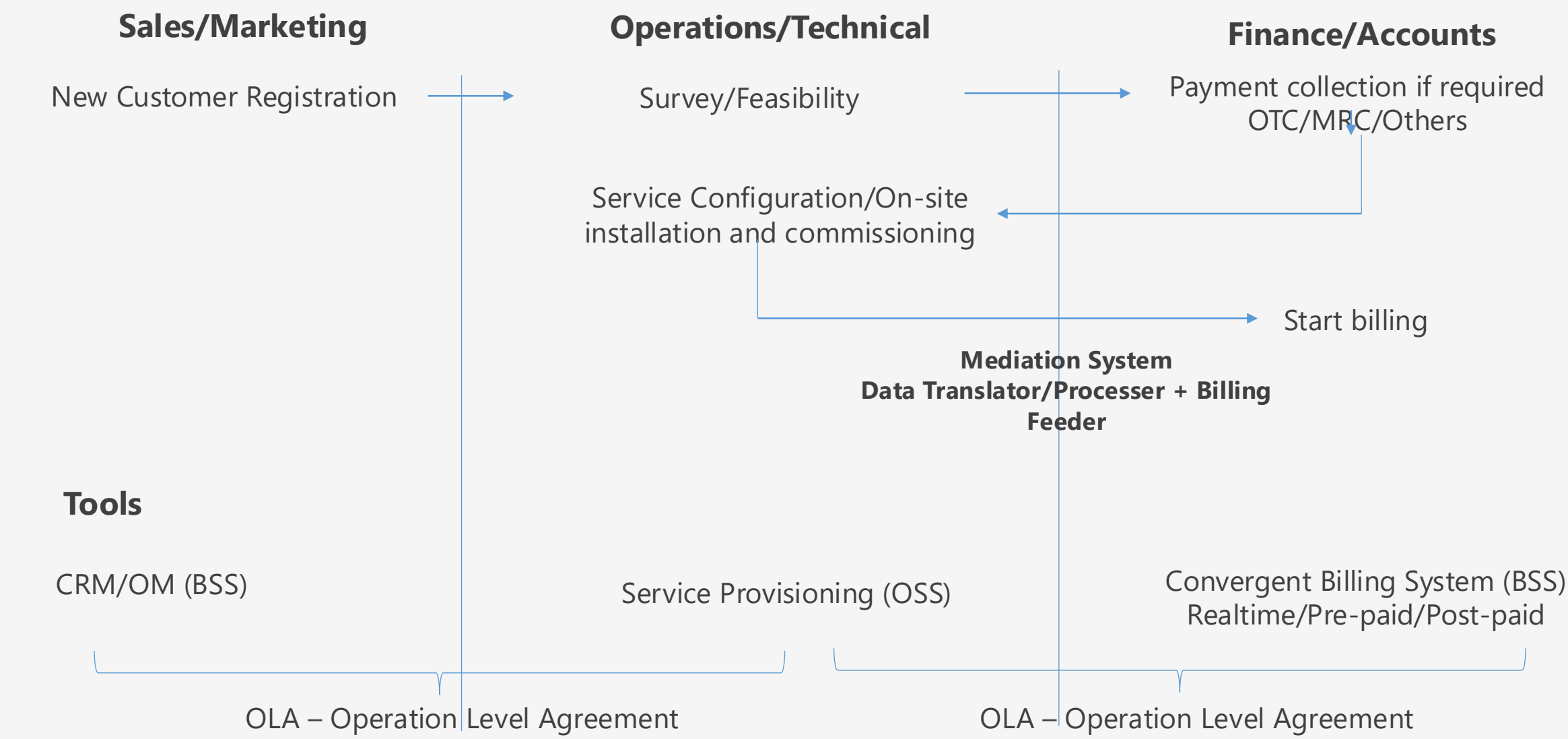
ISP Operations – Work/Job Orders

- New Service Request
- Incident Report (Customer/Network)
- Change Request (Customer/Network)

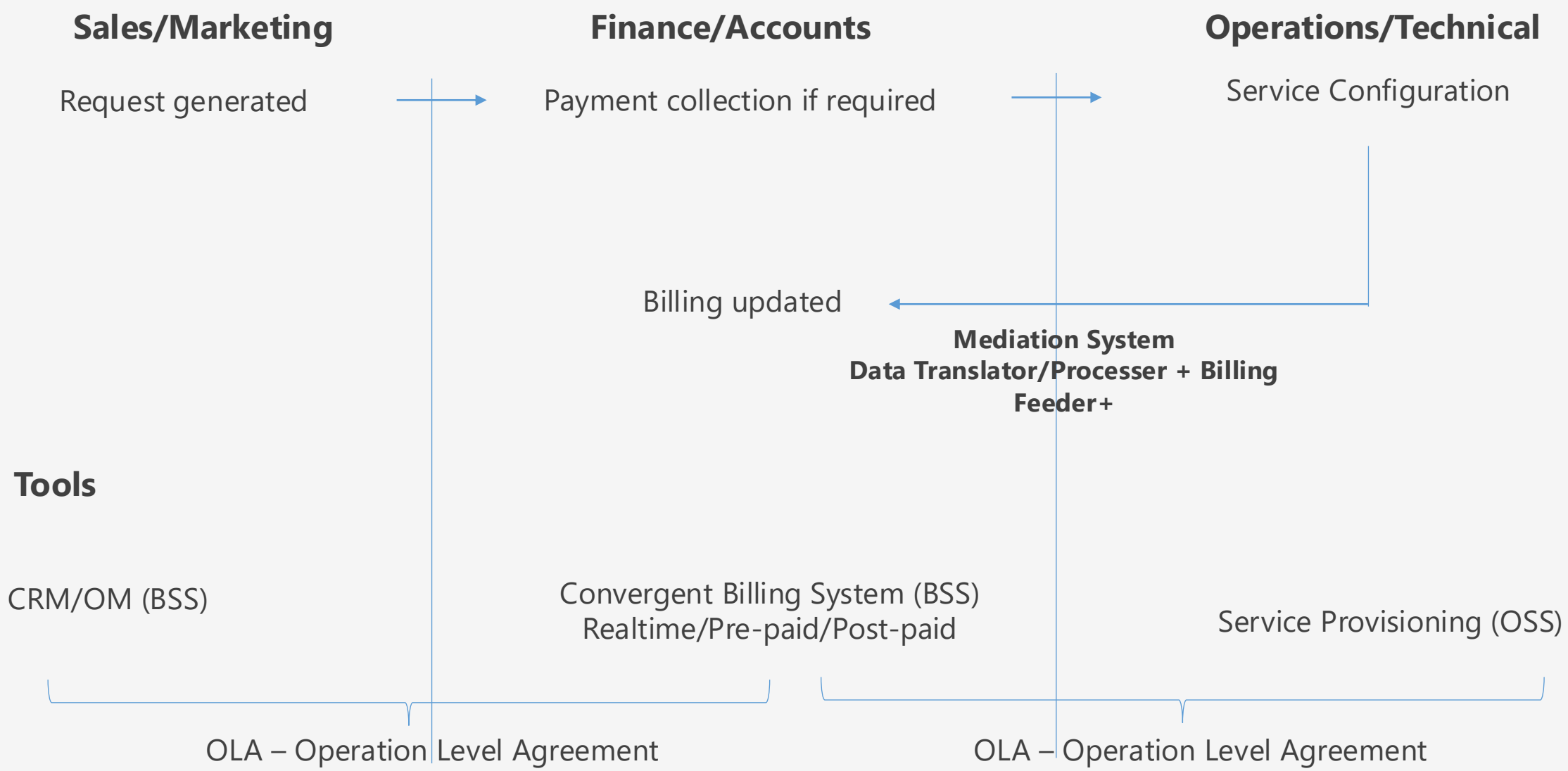
ISP Project

- New Network Implementation/Expansion
- Migration

ISP Operations – New Service Workflow - idle



ISP Operations – Change Request – Individuals



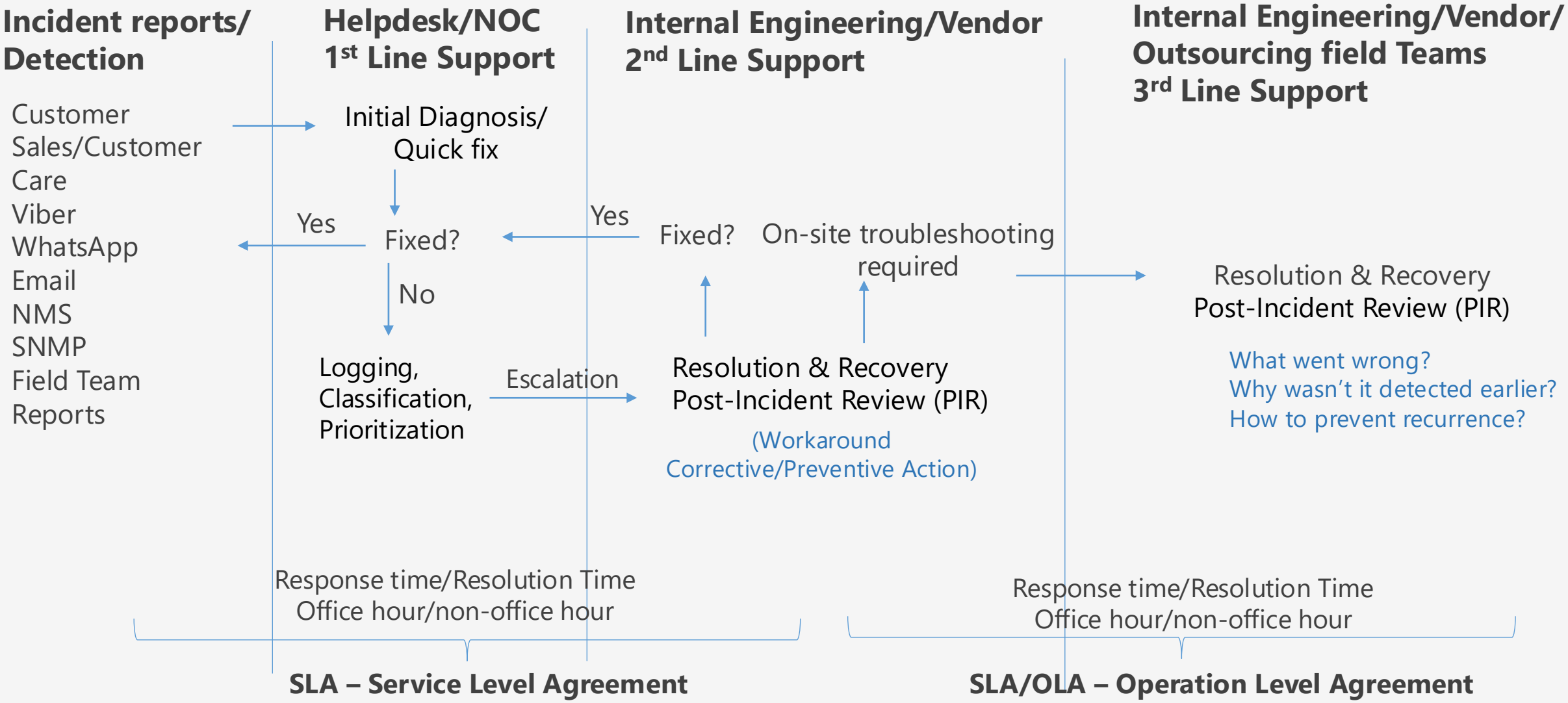
ISP Operations – Tools

Network-facing

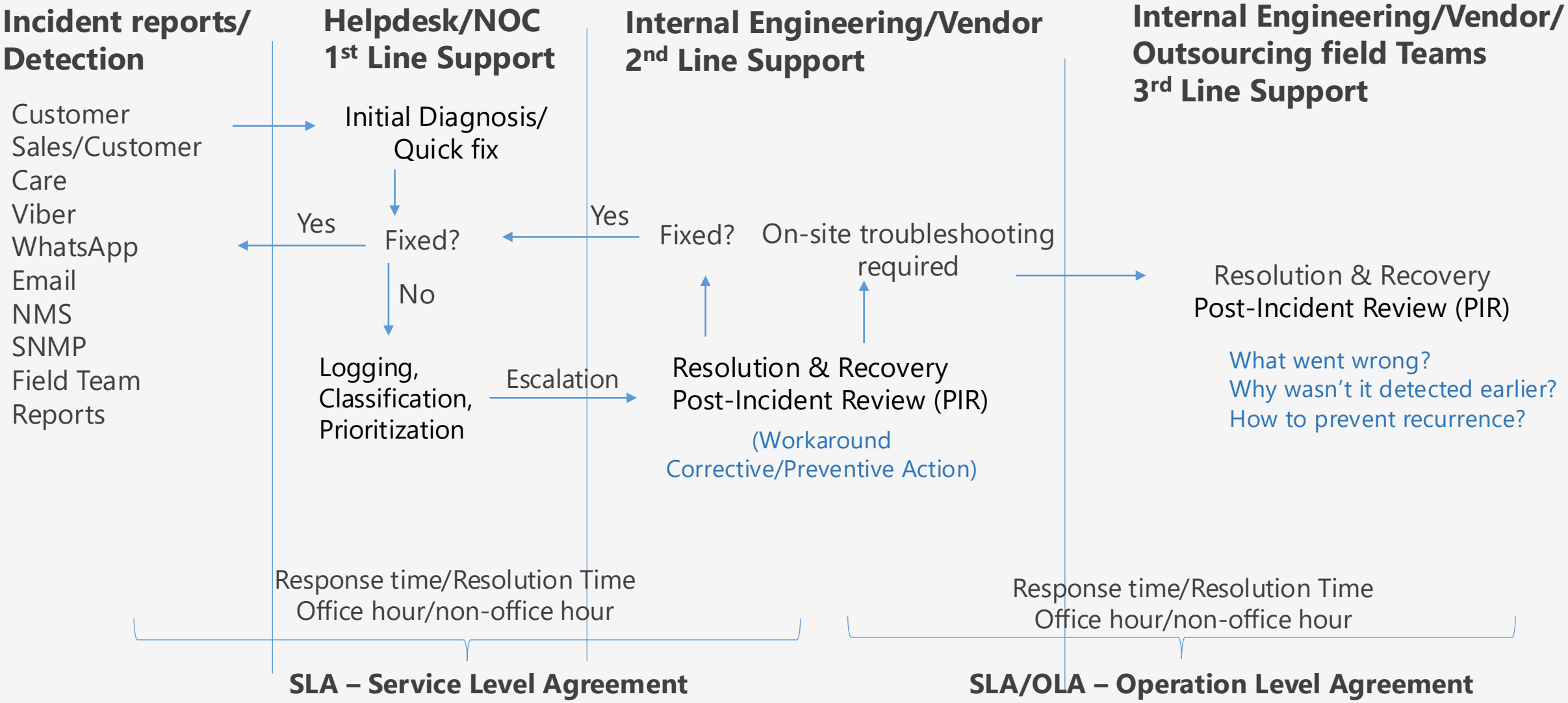
customer-facing and revenue-related processes



ISP Operations – Incident handling procedure



ISP Operations – Incident handling procedure



Types of Changes in Network

Standard Changes (Low Risk)
Pre-approved, repeatable, minimal impact
•Adding new ONU/ONT subscriber, Assigning VLAN for new customer
•Bandwidth profile update (50M → 100M)
•Adding OLT device to NMS, Routine config backup
•Battery replacement/Engine Oil replacement for stand-by generator

Normal Changes (Planned – Medium to High Risk)
Requires planning, approval, and scheduling
•OLT firmware upgrade, Uplink upgrade (1G → 10G)
•Fiber rerouting due to construction
•Split ratio change (1:32 → 1:64)
•Batteries replacement for Data Center UPS

Emergency Changes (Urgent, High Risk)
Urgent fixes (e.g., Failed AGG router, Failed OLT card replacement, Failed uplink and traffic re-routing)
Immediate approval via Chat, Teams, WhatsApp approval, Formal change request to be generated only after fixed.

Change Request Components

Network Change Request Form	
Change Details	Active Network Change / Passive Network Change
	Change Description (clear description of the change including devices, systems, and components affected.)
	Reason for Change / Business Justification
Impact Assessment	Minimal / Moderate / High Impact
	Affected systems/services/customers
	Downtime required ? Yes – Estimated duration
	Risk Mitigation / Backout Plan/ Rollback Plan
Change Implementation Plan	Schedule Date & Time/Change, Duration, Actual Date & Time of Change, Duration
	Step-by-step implementation plan
Required Resources	Hardware/equipment/personnel/Vehicle
Testing and Validation	Pre-Change Testing (if applicable):
	Post-Change Testing / Verification Plan: / Outcome
Approval	Team Leads/Manager/HOD etc

Discussion and/or proceed to Project Delivery?

Project Delivery

Project Delivery – Methodologies

Waterfall

Linear, sequential approach. Each phase must be completed before moving to the next.

Typical phases: Requirements → Design → Implementation → Testing → Deployment → Maintenance.

Agile

Iterative, incremental, and flexible. Work is divided into short cycles (sprints), with continuous feedback and adaptation.

Build → Test → Activate → Sell → Feedback → Improve next sprint

Hybrid Approach (Sample)

Implementation of FTTH Backbone and Access Network in Yangon, 30 townships. A hybrid method being applied by delivering the optical network area by area, enabling sales to begin customer acquisition as each completed area became operational while construction continued elsewhere.

Using Waterfall for planning and compliance, and Agile for execution PoP by PoP.

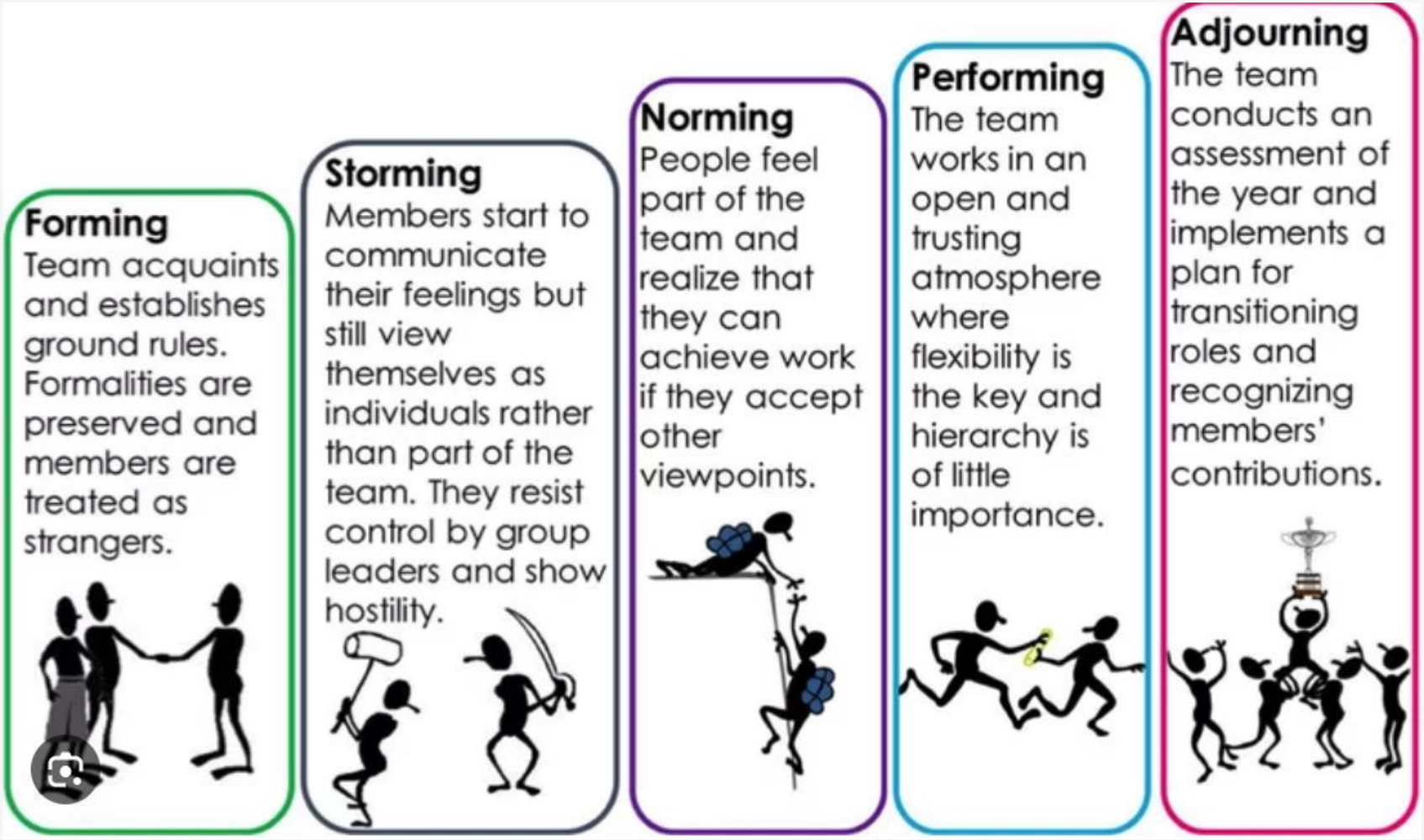
Penny Game : Penny Game, Agile, Hands-Off Technique.
Agile Lean Penny Game - Reduce batch size to increase productivity

Project Delivery – Triple Constraints



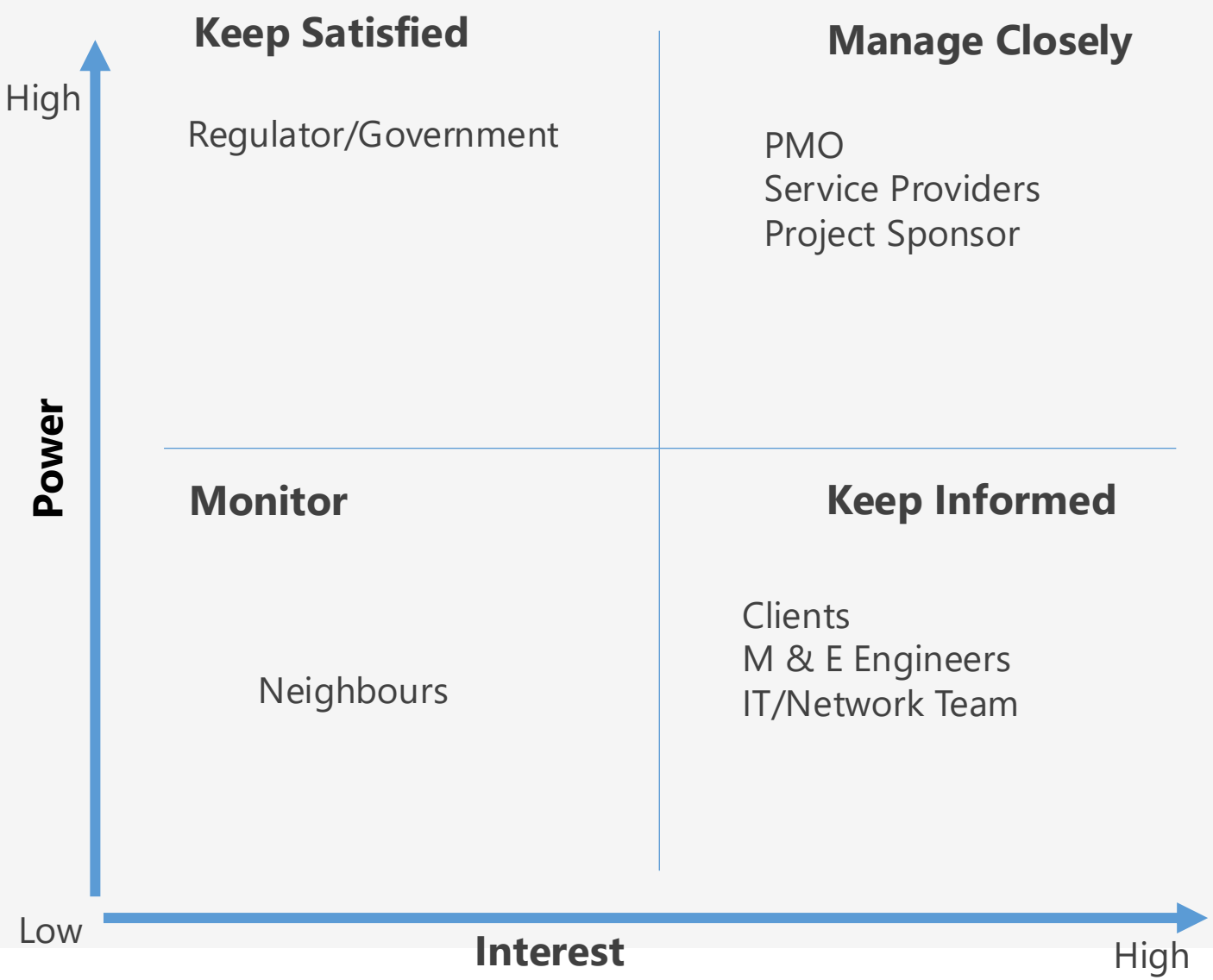
The triple constraint is significantly influenced by human factors, particularly stakeholders, whose decisions and expectations directly affect scope, schedule, and cost.

Project Delivery – Stages of Team Building Tuckman's Model



Product/Service Differentiation?

Project Delivery – Stakeholders – A Data Center Project



Regulator/Government
Construction permit/license/Fire Safety
Electricity

Service Providers
Cooling and fire suppression systems
Fiber / connectivity
Construction Companies
Network Equipment suppliers

Internal Project Teams
PMO
M & E Engineers
IT/Network Team

Clients
Co-location Customers

Others
Neighbours : affected by construction noise, Traffic
Project Sponsor

Project Delivery – Stakeholders – AI Assist

Internal Stakeholders – AI generated

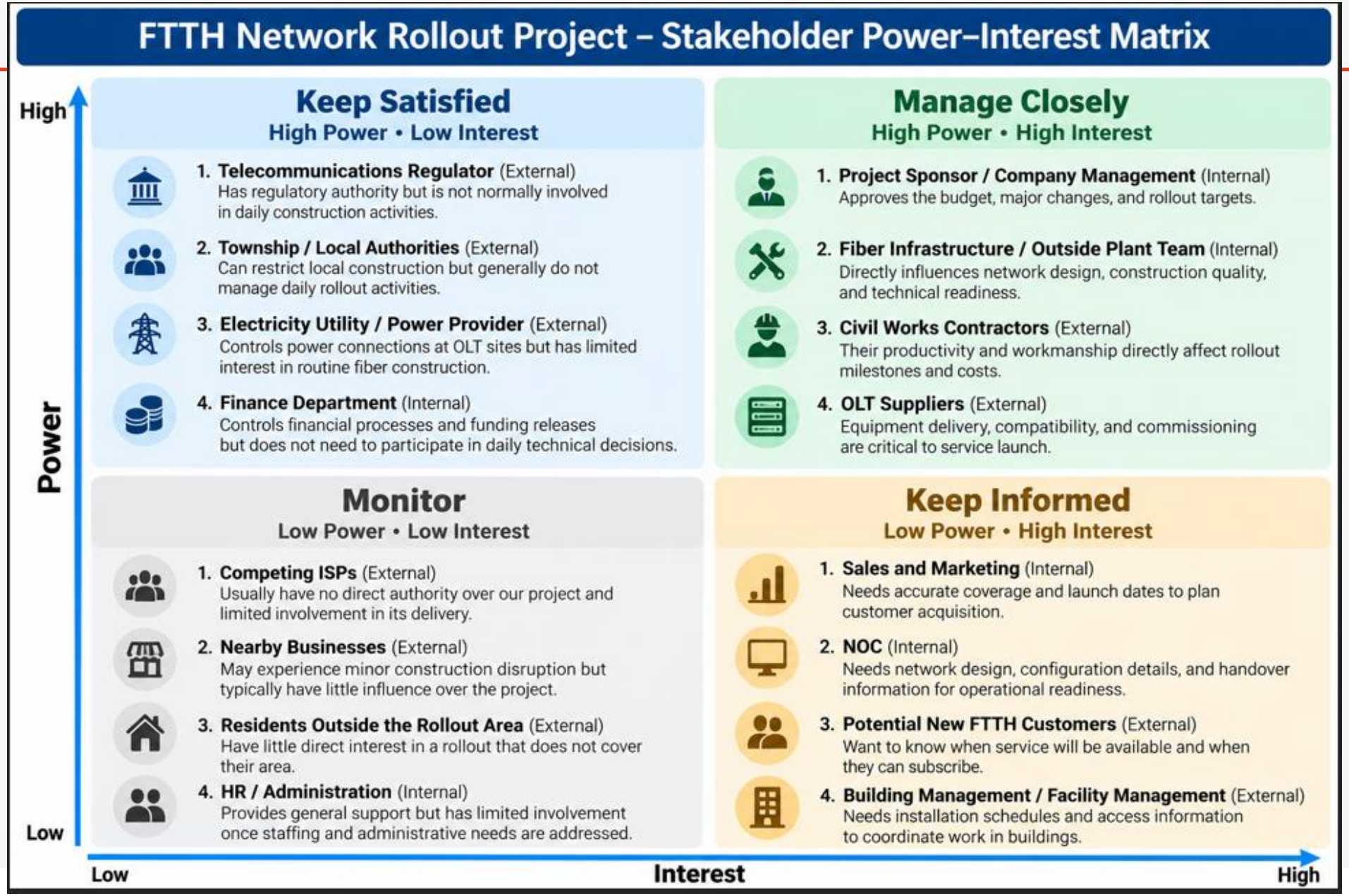
1. Project Sponsor / Company Management
2. Project Manager / PMO
3. Finance Department
4. Procurement Department
5. Legal Department
6. Sales and Marketing
7. Commercial / Business Development
8. **Network Planning Team**
9. **ISP Core Network Team**
10. **IP / Aggregation Network Team**
11. **GPON Access Network Team**
12. **Fiber Infrastructure / Outside Plant Team**
13. M&E Team
14. Network Operations Center (NOC)
15. OSS/BSS Team
16. IT / Systems Team
17. Customer Service / Helpdesk
18. **Field Installation Team**
19. **Network Maintenance Team**
20. **Quality Assurance / Technical Acceptance Team**
21. Health, Safety and Environment (HSE) Team
22. Warehouse / Inventory Team
23. Logistics / Transportation Team
24. HR / Administration
25. Information Security / Network Security Team

Project Delivery – Stakeholders – AI Assist

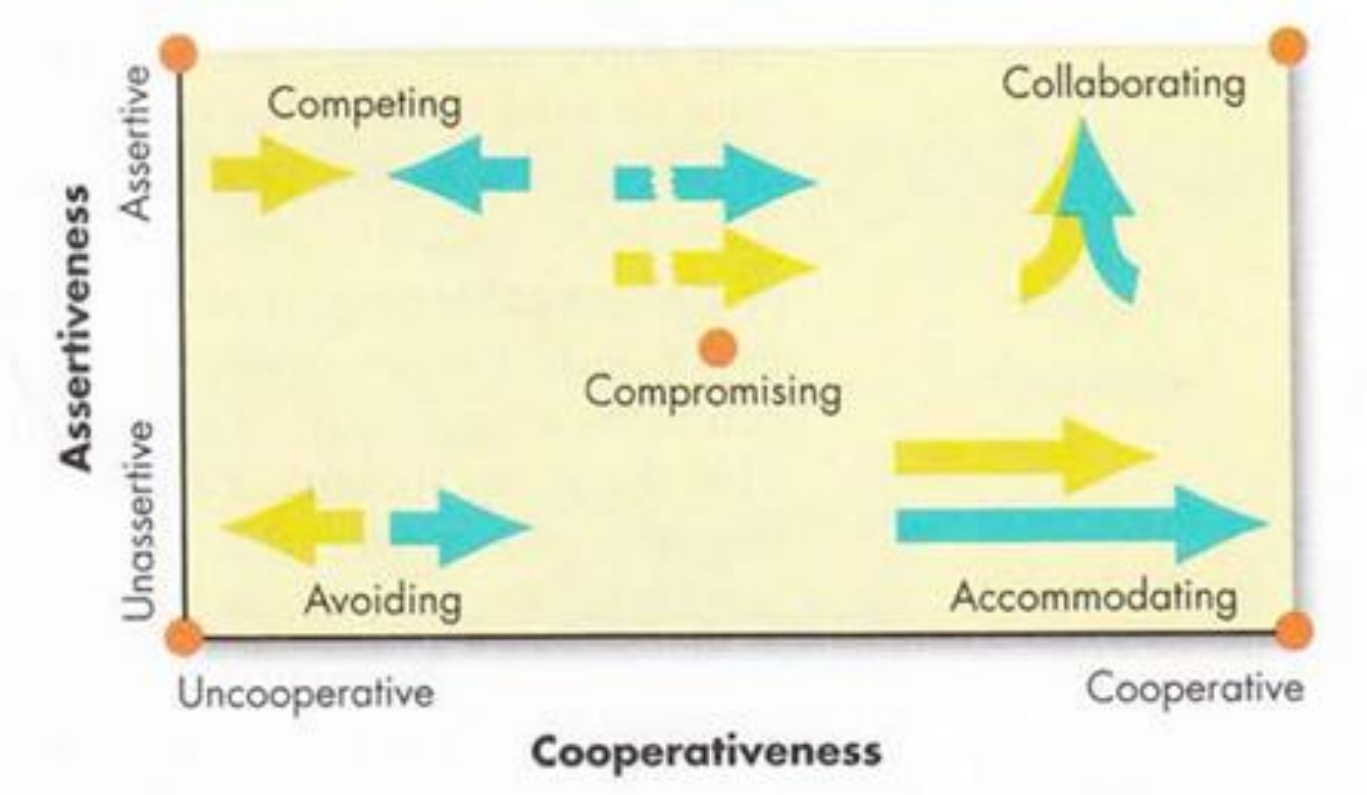
External Stakeholders – AI generated

1. Fiber Cable Suppliers
2. **OLT Suppliers**
3. **ONT / ONU Suppliers**
4. Passive Equipment Suppliers
5. Network Equipment Suppliers
6. Civil Works Contractors
7. **Aerial Fiber Contractors**
8. **Fiber Splicing Contractors**
9. **FTTH Installation Subcontractors**
10. Testing and Commissioning Contractors
11. Equipment Manufacturers / Technical Support
12. Third-Party Fiber / Dark Fiber Providers
13. Pole Infrastructure Owners
14. Duct / Infrastructure Owners
15. Building Owners / Property Developers
16. Landlords / Site Owners
17. Electricity Utility / Power Provider
18. Transport / Road Authorities
19. Township / Local Authorities
20. Telecommunications Regulator
21. Government Agencies
22. Traffic / Public Safety Authorities
23. **Environmental Authorities**
24. **Existing ISP Customers**
25. **Potential New FTTH Customers**
26. **Enterprise Customers**
27. Property Developers / Housing Associations
28. Building Management / Facility Management
29. Residents in the Rollout Area
30. **Nearby Businesses**
31. Competing ISPs
32. Wholesale / Carrier Partners
33. **Community Representatives**

Stakeholder Matrix – AI Generated



Dimensions of Conflict-Handling Intentions



Sourcer Figure lrom "Conflict ond Negotiotion Processes in Orgonizoiions" by K. Thomos in Hondbook of Induslriol ond Orgonizotionol psychology,2/e,Yol. 3, ed. by M. li. Dunnette ond L. M. Hough, p. 668 (Polo ,Alto, CA: Consulting Psychologists Press, 1 992).

Conflict Resolution Techniques

1. **Avoiding (Withdrawal) :**

Cooling down: Postponing a discussion until people are calmer.

Prioritizing urgent work: Postponing a minor disagreement to handle a major network outage first.

- Two NOC engineers disagree about who should work the night shift. The manager postpones the discussion to handle a major network outage first.

Conflict Resolution Techniques

2. Accommodating/Smoothing :

Accommodating: Give priority to the other party's needs over your own.

Smoothing: Reduce tension by emphasizing common interests and playing down differences.

Accommodating: The Network team accepts the Sales team's preferred installation schedule, even though it is less convenient for Network.

Smoothing: The Network and Sales teams focus on their shared goal of satisfying the customer rather than arguing about who caused the delay.

Conflict Resolution Techniques

3. Compromising (Middle Ground) : Both parties give up something. (Lose-Lose)

- Contractor wants 10 days extension → agree on 5 days
- The Network team wants 3 days for maintenance, while the Sales team wants only 1 day to minimize customer disruption. They agree on 2 days.

4. Competing (Forcing) : One party wins (Win-Lose) .

- The Sales team wants to launch a new FTTH package next week, but the Technical Manager insists on delaying the launch until the network passes all required tests.- Technical team wins: The launch is delayed.- Sales team loses: The planned launch date is not achieved.
- Stop unsafe construction immediately/Safety or compliance issue

Conflict Resolution Techniques

5. Collaborating (Win-Win) ⭐ Best Approach : Solve root cause. Both parties find a solution that satisfies their needs and addresses the root cause.

•Residents don’t want trenching for fiber. (oppose road excavation)
•Switch to micro-trenching or aerial fiber

Conflict Resolution Techniques

Problem solving : Face-to-face meeting of the conflicting parties for the purpose of identifying the problem and resolving it through open discussion.

Expansion of resources : When a conflict is caused by the scarcity of a resource (for example, money, promotion, opportunities, office space), expansion of the resource can create a win-win solution.

Authoritative command : Management uses its formal authority to resolve the conflict and then communicates its desires to the parties involved.

Altering the human variable : Using behavioral change techniques such as human relations training to alter attitudes and behaviors that cause conflict.

Altering the structural variables : Changing the formal organization structure and the interaction patterns of conflicting parties through job redesign, transfers, creation of coordinating positions, and the like.

Source:BosedonS.PRobbins,MonogingOrgonizolionolConflicf:ANonfroditionolApproachlUpperSoddleRiver,NJ:PrenticeHoll'1974)

Project Delivery – Risk - Negative

Risk	likelihood	Impact	Score	Impact$	Owner	Strategy	Status
R1	5	5	25	100,000	O1	Avoid	Active
R2	2	1	2	8,000	O2	Accept	Expired
R3	4	3	12	20,000	O3	Mitigate	Active
R4	3	3	9	14,000	O4	Transfer	Active

Avoid (Eliminate the Risk) : Change the plan so the risk no longer exists.

•Risk: Fiber route passes through politically sensitive or restricted area
•Mitigation: Redesign route to avoid that zone completely

Mitigate : Reduce Probability or Impact

•Risk: Power failure
•Mitigation: Install dual power feeds + UPS + generators

•Risk: Fiber Cut
•Mitigation: Ring topology instead of linear

Project Delivery – Risk - Negative

Transfer : Shift the Risk
Move risk to a third party. Insurance, Outsourcing, Contract (SLA penalties)
Use contractor for civil work → contractor bears delay penalties

Accept : Do Nothing but Prepare
Passive : Just accept. Active : Prepare contingency plan
Minor delay due to rain. Add buffer days in schedule. Add cost buffer in budget.

Escalate : Refer the risk to someone outside the project manager's authority.
Escalate a major government permit issue to senior management for resolution. (Time + Cost + Schedule)
The Sales Director requests changing coverage on the FTTH rollout. (Time + Cost + Schedule)

Escalate > Impact Assessment and CR > Decision > Update the baseline

Project Delivery – Risk - Positive

Exploit : Make sure the opportunity happens.
A supplier offers a discount if we place a bulk order.
A property developer offers your ISP exclusive access to install FTTH before residents move in. The PM coordinates with the developer and project teams to ensure the installation is completed before occupancy.

Enhance: Increase the chance or benefit of the opportunity.
A contractor may finish fiber construction early. The PM arranges additional crews and materials to increase the chance of early completion

Share : Work with another party to capture the opportunity together.
Another ISP has spare Infra capacity in a target township. The PM negotiates an infrastructure-sharing agreement so both companies can benefit.

Accept : Take the benefit if it happens, without actively pursuing it.
A supplier may offer an unexpected discount. The PM makes no special arrangement but will use the discount if it becomes available.

Escalate : Refer an opportunity beyond the PM's authority to the appropriate decision-maker.
A property developer offers access to additional 2,000 homes across several townships. The PM escalates the opportunity to senior management because a commercial partnership requires executive approval.

AI Tools for Project Delivery

Examples of tools that support project managers — not an official PMI-endorsed list. There may be other tools available, and some of the tools listed may not fully meet your specific requirements.

1. Project planning and milestones: Monday.com, Wrike
2. Communication and meeting summaries: Grammarly, Otter.ai
3. Data analysis and reporting: Tableau
4. Risk assessment: RiskLens, RiskWatch
5. Resource planning: Smartsheet, Kantata
6. Scheduling and prioritization: Motion, Hive
7. Budgeting and financial forecasting: Prophix

End of Presentation — Thank You