



Fare Collection Workshop

Fare Collection 101

System Planning



Pete Comps

LTK Engineering Services





System Planning

You want a new fare collection system for your transit agency
- WHY?!?

1. You want to reduce the barriers for improved customer utilization of your system, and improve their ability to easily pay fares.
2. Your Senator just earmarked \$200 million in Stimulus Funding for your transit agency.
3. Tired of the local newspapers talking about your fare system being able to accept Chuck E. Cheese tokens but not the new \$10s or \$20s.



System Planning

Assess the current fare system.



What works, what doesn't, and Why?



Examine Existing Fare Policy & Collection

Are there goals and objectives?



What is important to the Agency?



Identify Agency Objectives & Priorities

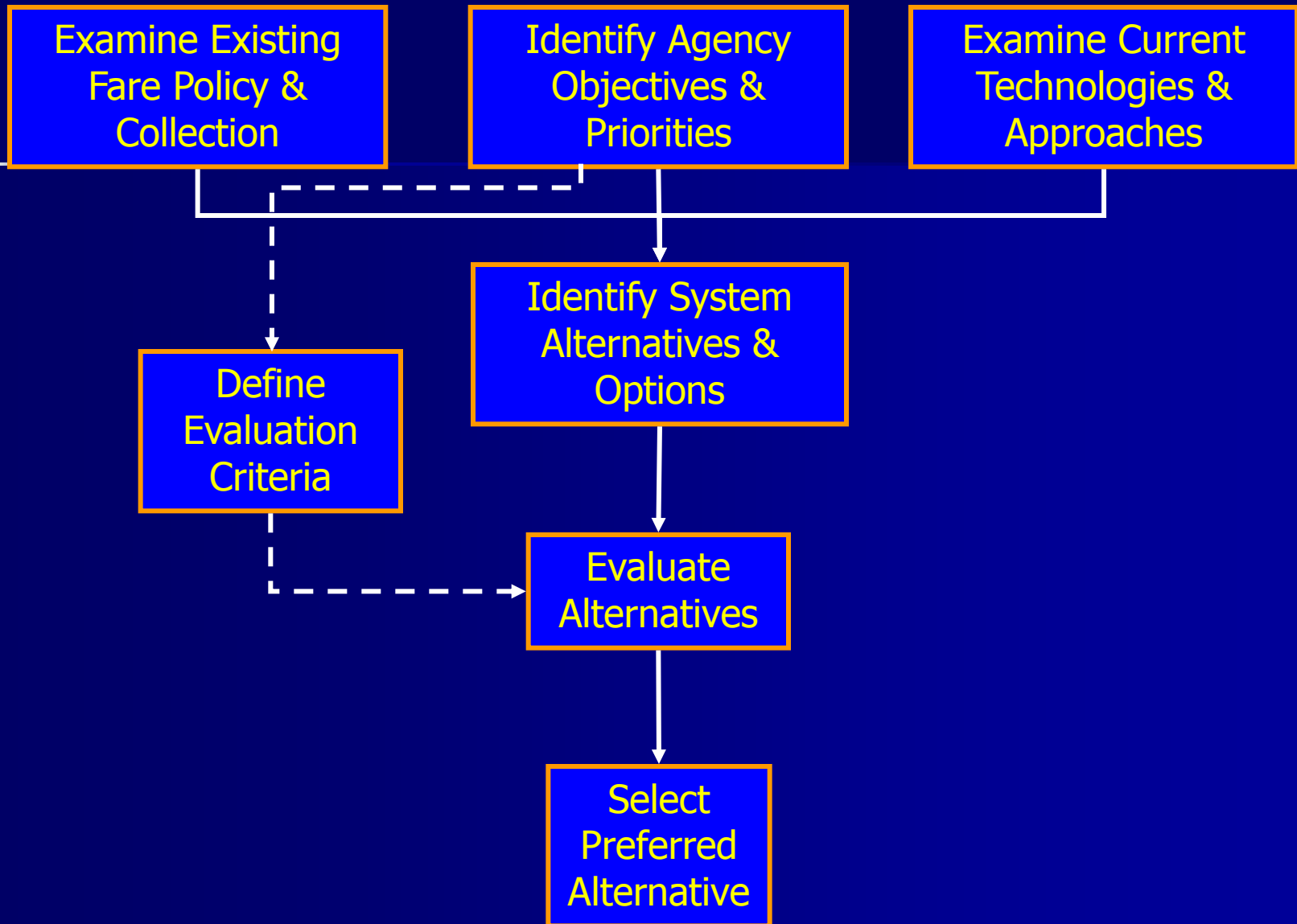
What is available?

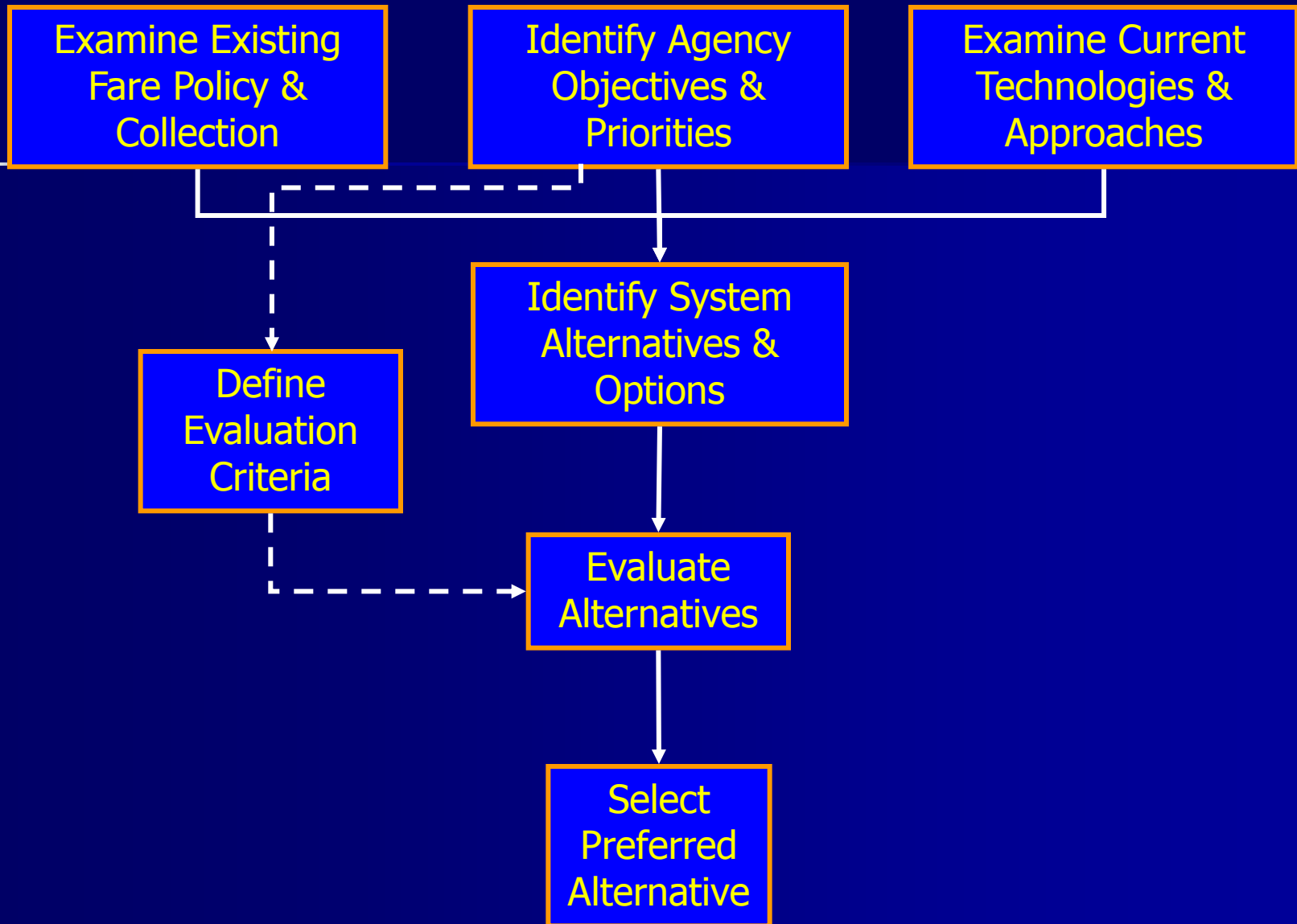


Technologies/Functionality, What is there; does it work?



Examine Current Technologies & Approaches







Examine Existing Fare Policy & Collection

Seek a Thorough Understanding of Your System

Equipment Condition

Age, Capabilities, Functionality
Reliability & Maintainability
Refurbish? Modify? Replace? Outsource?

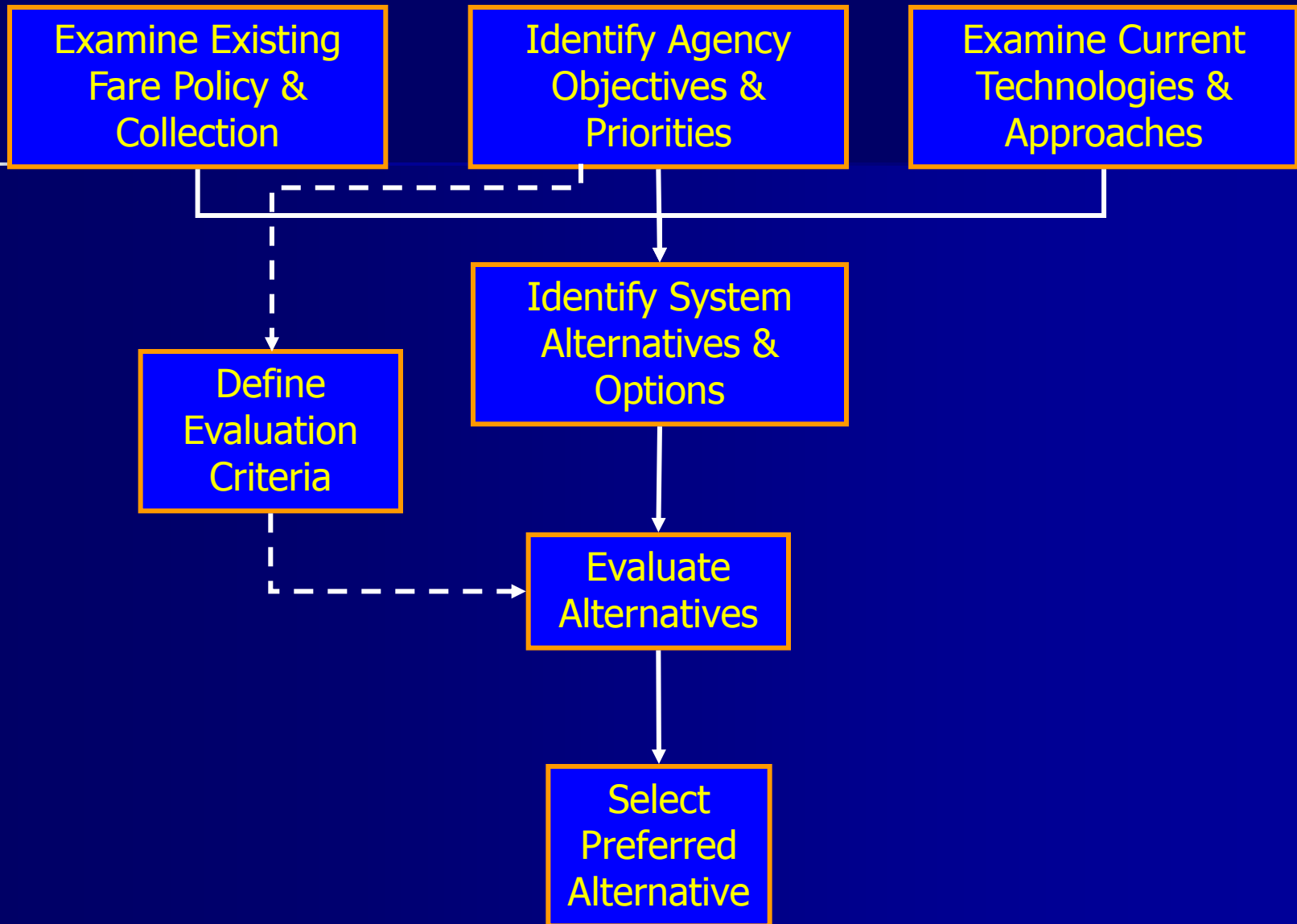
Fare Policy

On-Board, Off-Vehicle, Off-Site
1-Ride, Multi-Ride, Period/Calendar Passes
Open Payments/NFC

Annual O&M Costs

Rider Characteristics

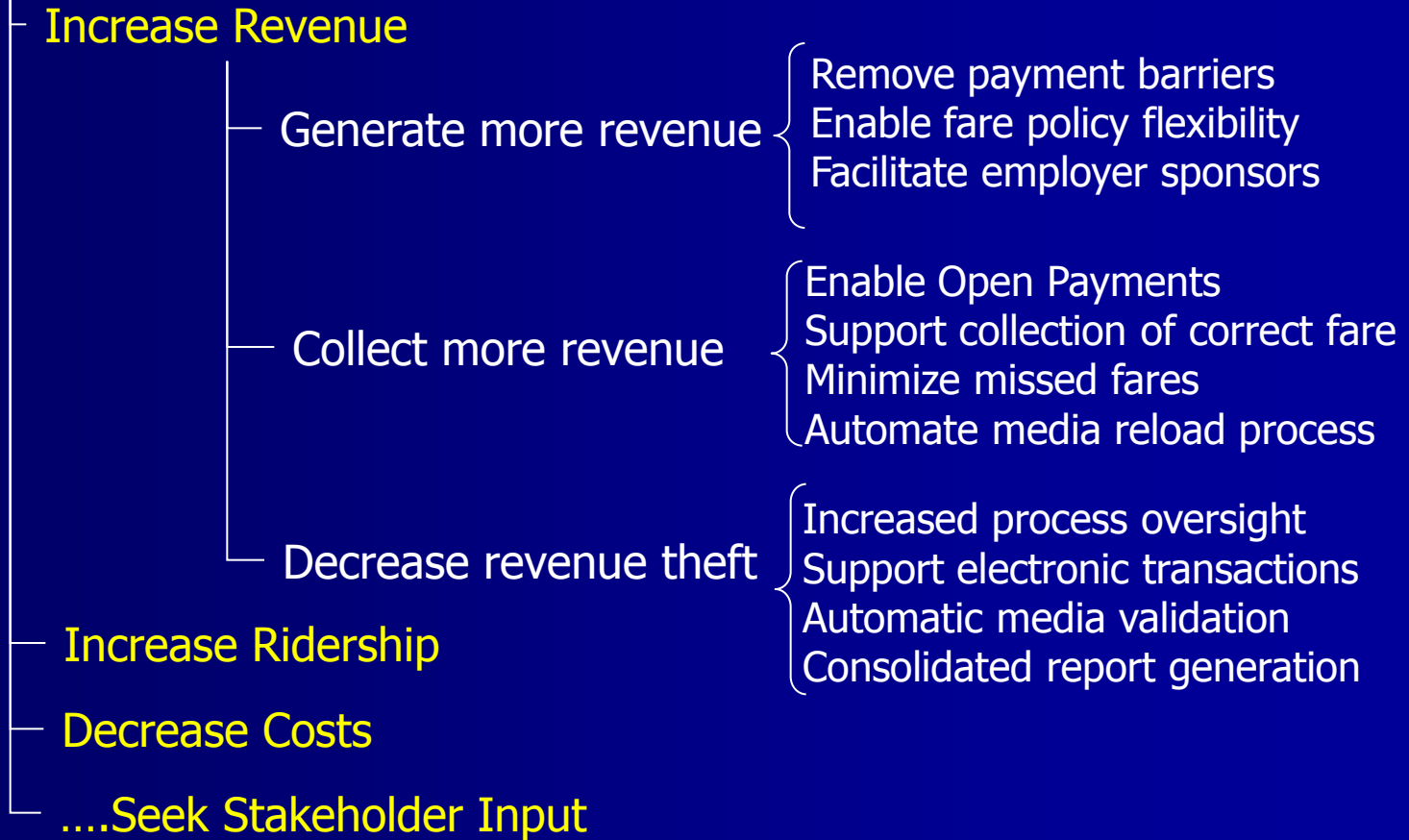
Type of Rider: Urban, Suburban
Frequency of Ride: Commuter, Occasional
Type of Trip: One Seat, Linked Ride





Identify Agency Objectives & Priorities

Objectives to Consider; Establish Priorities





Identify Agency Objectives & Priorities

Objectives to Consider; Establish Priorities

Increase Revenue

Increase Ridership

Improve service value

Fares reflect service value

Improve service quality

Speed boarding times
Special event surges
Improve ridership data

Improve ease-of-use

Simplify purchase, payment

Open new markets

Support open payments
Facilitate employer benefits
School/University partnerships
Interagency transfers

Decrease Costs

....Seek Stakeholder Input



Identify Agency Objectives & Priorities

Objectives to Consider; Establish Priorities

Increase Revenue

Increase Ridership

Decrease Costs

Reduce capital cost

What is your available capital budget?
Consideration of overhaul/upgrade of items
Reduced dwell time = less equipment
Increased throughput = less equipment
Minimize equipment by outsourcing

Reduce operating cost

Facilitate open payments
Provide ability to re-use media
Employ customer-friendly technology
Consider outsourcing of activities

....Seek Stakeholder Input



Identify Agency Objectives & Priorities

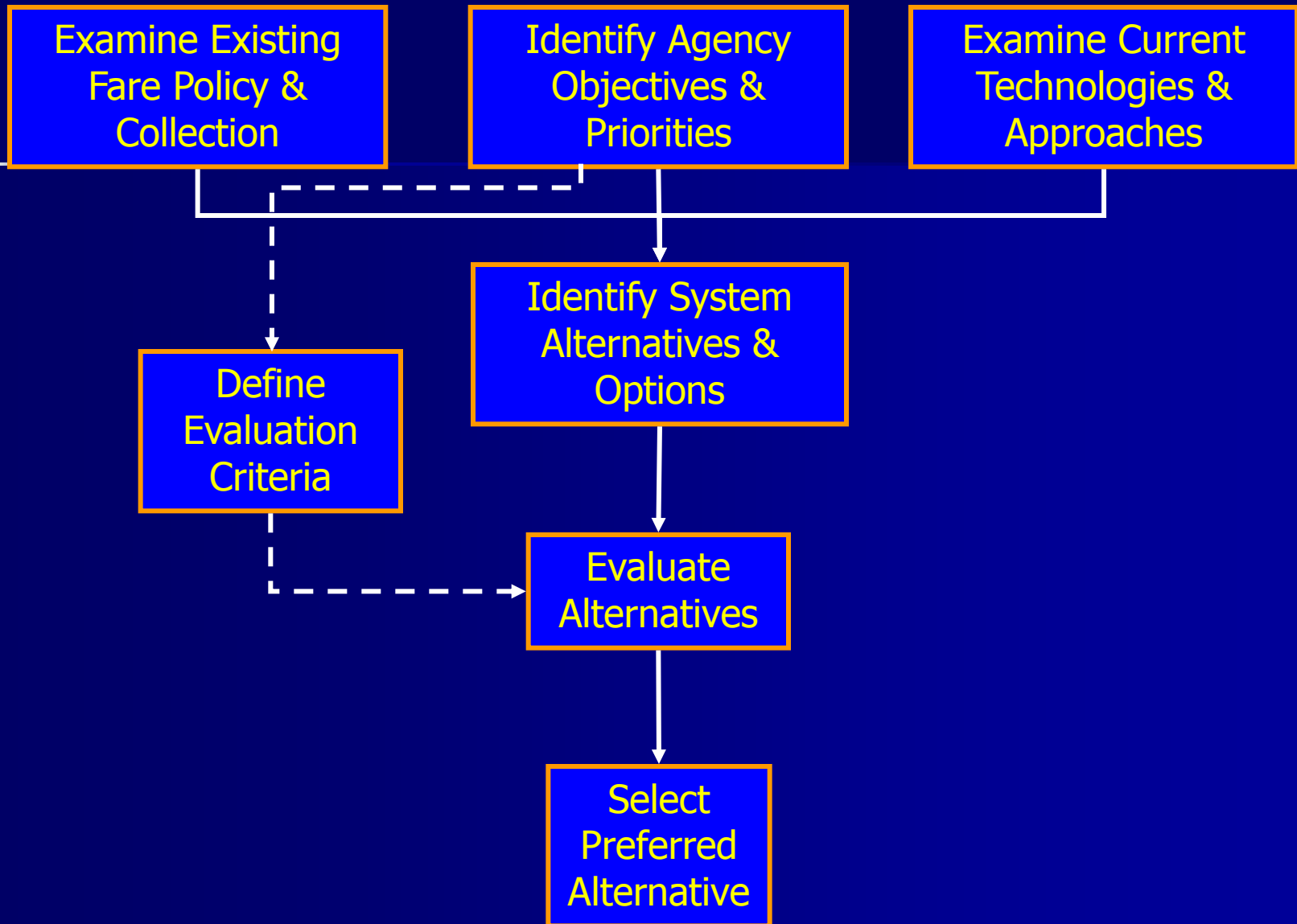
Seek a Thorough Understanding of Your Stakeholders

Internal Stakeholder Input

Revenue; Operations;
Maintenance; Security;
Planning; Information Systems;
Customer Service; Finance/Accounting;
Marketing; Engineering.

External Stakeholder Input

Customers; Regular, Occasional
Regional Planning Organizations
Transit Benefit Providers
Partner Organizations – Universities,
schools, etc.
Adjoining Transit Agencies





Examine Current Technologies & Approaches

Understanding Technology and Lessons Learned

- Perform Survey of Available Fare Systems Technology
- Assess Deployment Approaches
- Review Existing & Pending Standards



Examine Current Technologies & Approaches

Elements of Technology and Application

Perform Survey of Available Technology

Traditional

Utilizes Magnetic and/or Smart Media
Requires extensive deployment of hardware
Typically deployed as a vendor-specific proprietary system

Open Payment

Utilizes all types of Media
Requires limited deployment of hardware
Needs excellent wireless and wired network
Typically deployed as a non-proprietary system

Hybrid

Utilizes all types of Media
Requires medium deployment of hardware
Conservative deployment approach
Typically deployed as a non-proprietary system

Assess Deployment Approaches

Review Existing & Pending Standards



Examine Current Technologies & Approaches

Elements of Technology and Application

Perform Survey of Available Technology

Assess Deployment Approaches

Media Distribution

Agency Personnel Interaction
Automated Devices in Field
Web/Call Center Services
Third Party Retailers

Media Utilization

On-Board – Manual w/farebox, card readers
Off-Board - Automated w/ fare gates, TVMs
Proof of Payment – Manual validation w/HHDs

Outsourcing

Leased Equipment in Field
Maintenance Services
Revenue Services
Transaction Processing Center

Review Existing & Pending Standards



Examine Current Technologies & Approaches

Elements of Technology and Application

Perform Survey of Available Technology

Assess Deployment Approaches

Review Existing & Pending Standards

Media

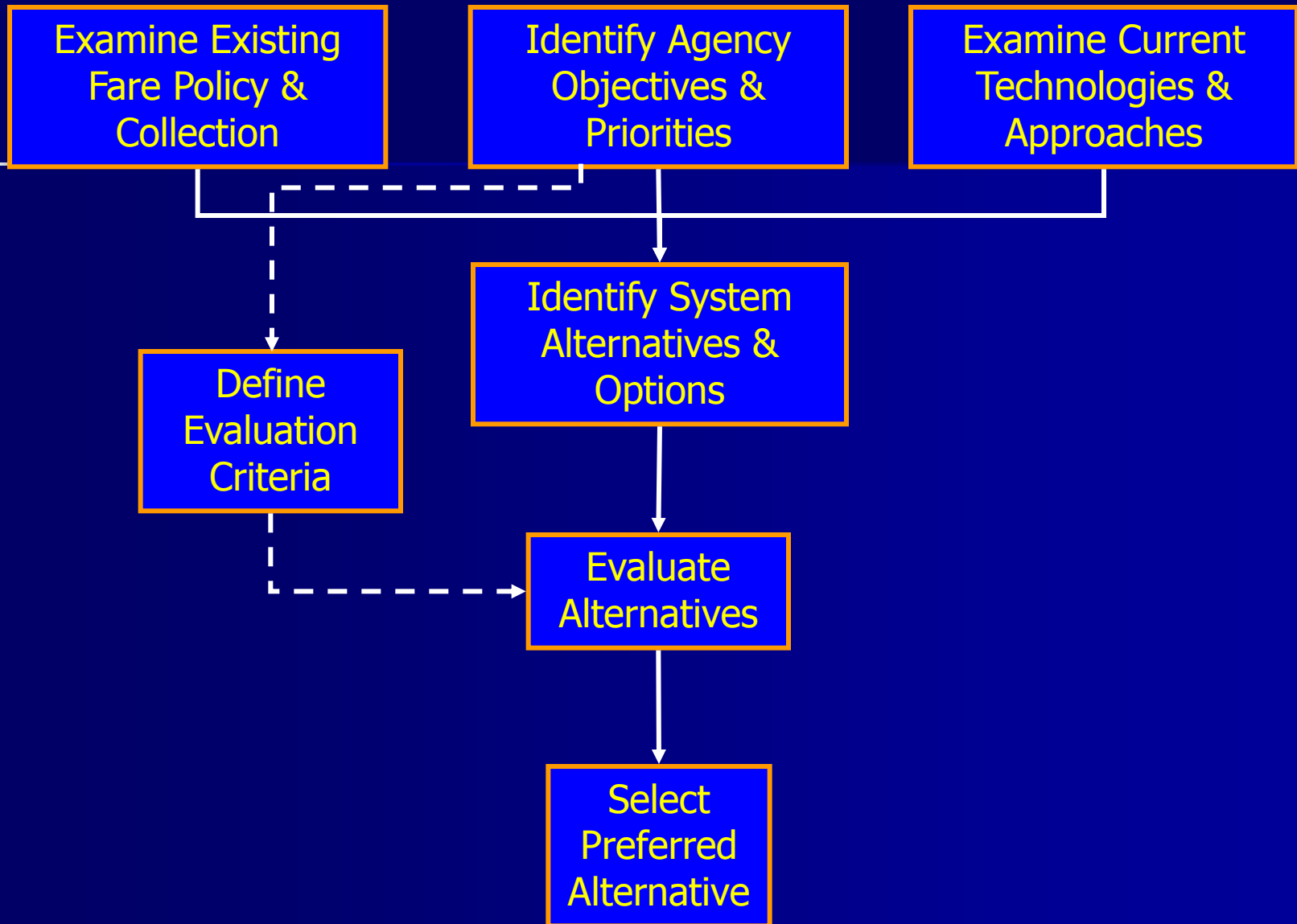
Magnetic Standards
Smart Media Standards
NFC Standards

Equipment

Engineering Codes
Building Codes
Fire Safety Codes

Payment Security

PCI-DSS
Network
Wireless





Identify System Alternatives & Options

Key Factors Influencing Alternatives

Fare structure

Flat or zoned; mileage-based
Service-based: local, express

Ridership characteristics,
Service & facilities

Service type, service frequency;
Trip characteristics (1 vs. 2+veh's)
Open or closed facilities

Customer demographics

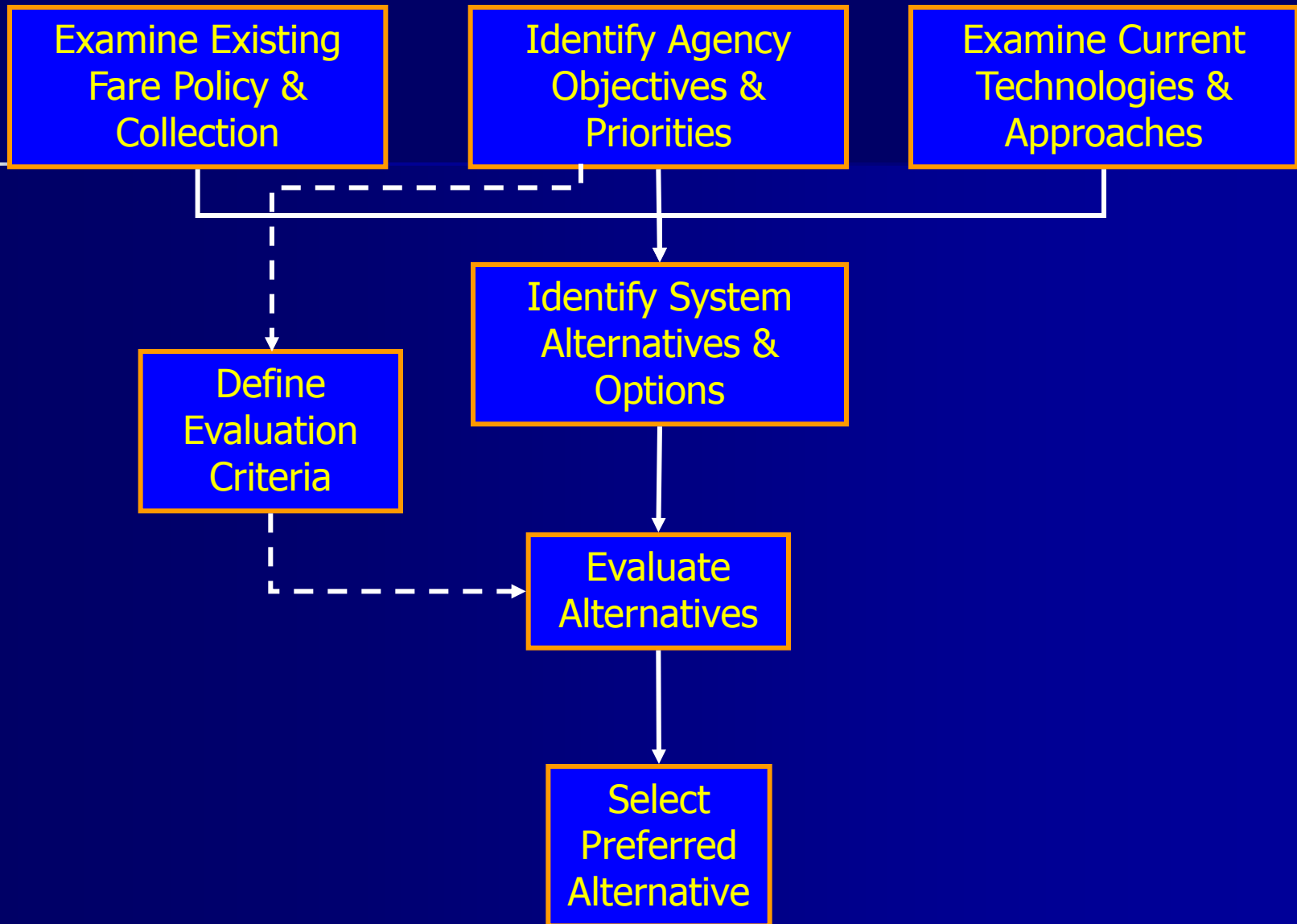
Urban, Suburban
Banked, Underbanked, Unbanked

Desired methodology

On-board; in-station;
back-office; regional

Agency culture

Strength of internal staff
Capital vs operating budget balance
Appetite for risk





Evaluate Alternatives

Base Your Criteria on Your Objectives

Capital Costs	Initial investment
O&M Costs	Life Cycle Costs
Fare Flexibility	Introduce and/or revise fares
Fare Enforcement	Deter evasion; Collect the right fare
Service Quality	Speed the trip
Revenue Security	Protect revenue in all phases
Convenience	Ease of use and administration
Data Quality	Rider travel and preferences
Versatility	System longevity and future growth



Evaluate Alternatives

Systems Operating Costs

Operations

In-station or dedicated on-board fare collection

Maintenance

Field; component; inventory

Fare media

Stock inventory, sales/refunds; transit benefits; distribution/control

Cash revenue

Collection & processing

Police / Security

Collection & processing security

Fare inspection

Inspection; processing/tracking; adjudication

Information Systems

Software & network maint/admin
Software licenses; End-user support



Evaluate Alternatives

Systems Capital Costs

System Development & Design

- Staff project support/mgt
- Professional services
- System requirements;
- Specification preparation

Procurement Management

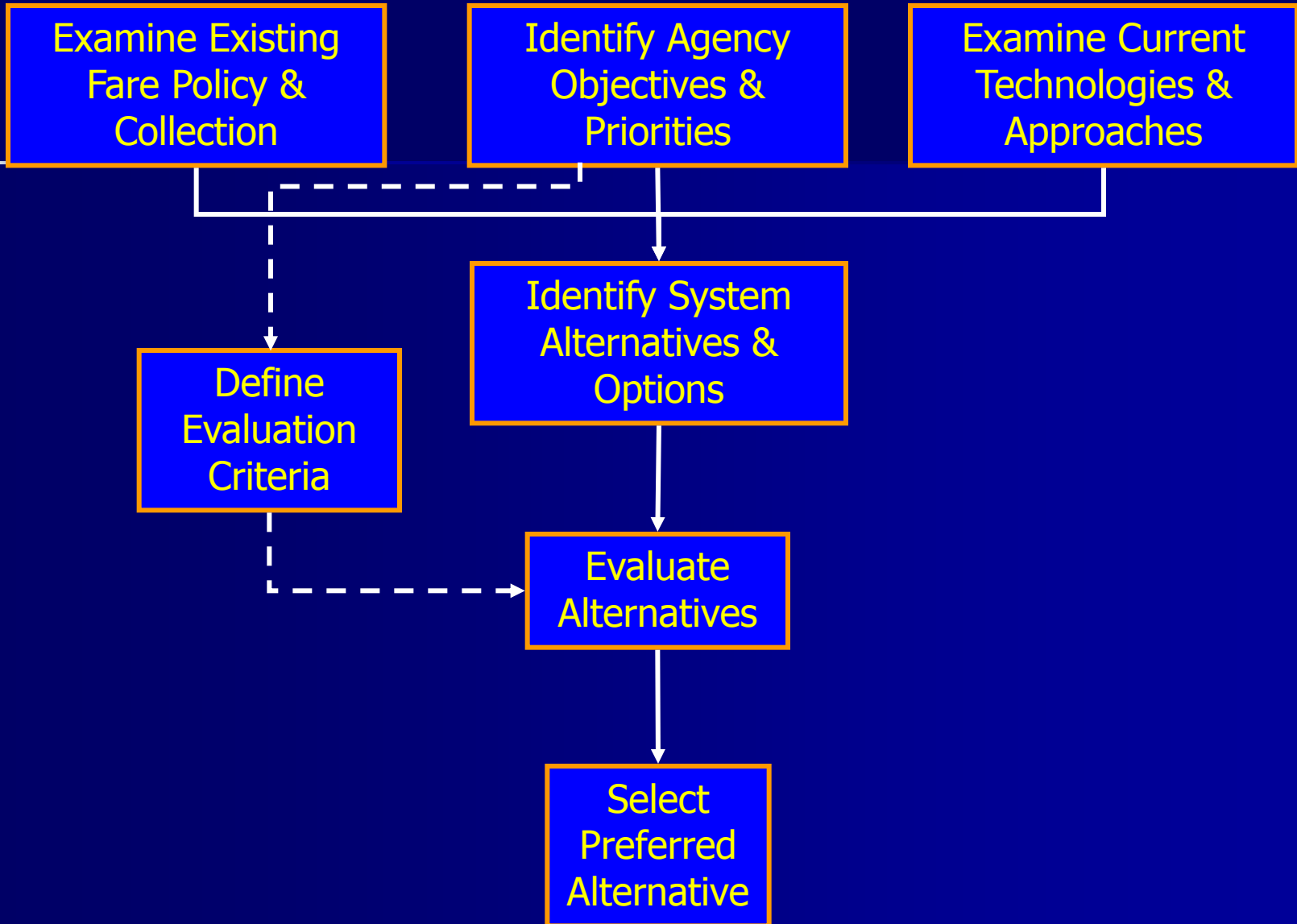
- Solicitation / evaluation / selection;
- Project management;
- Design review; Systems interfaces

Procurement Contractor

- Equipment; Media; Software;
- Engineering; Project mgt.;
- installation & testing;
- documentation; training program, warranty

Implementation

- Site Preparation,
- Recruitment; (re)training;
- procedures; public education;
- transition plan





Select Preferred Alternative

Consider all objectives; give greater weight to priorities

Communicate: Be open about the selection process

Be open about the process: maintain support

Have an executive-level champion for the project

After Selection:

Identify and Address Key Decisions: Business Rules

Implementation Plan and Schedule



Resources
For further information:

American Public Transportation Association
www.apta.com

"Automatic Fare Collection System Planning and Implementation Guidelines,"
[www.aptastandards.com/Documents/TechnicalSpecifications/
UniversalTransitFarecardGuidelinesandReports/tabid/168/Default.aspx](http://www.aptastandards.com/Documents/TechnicalSpecifications/UniversalTransitFarecardGuidelinesandReports/tabid/168/Default.aspx)

Smart Card Alliance
www.smartcardalliance.org

Federal Reserve Bank of Philadelphia – Payment Card Center
www.philadelphiafed.org/payment-cards-center

Pete Comps
LTK Engineering Services
Chicago, IL
(312) 922-0800 x12
pcomps@ltk.com