Dependency Management

ESP — ENTERPRISE SERVICES PLANNING · Kanban University · David J Anderson School of Management · mauvisoft Decision Support

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GENERAL DEPENDENCY MANAGEMENT WITH KANBAN

There are many specific practices in the Kanban Method that contribute to an effective approach to dependency management; for example:
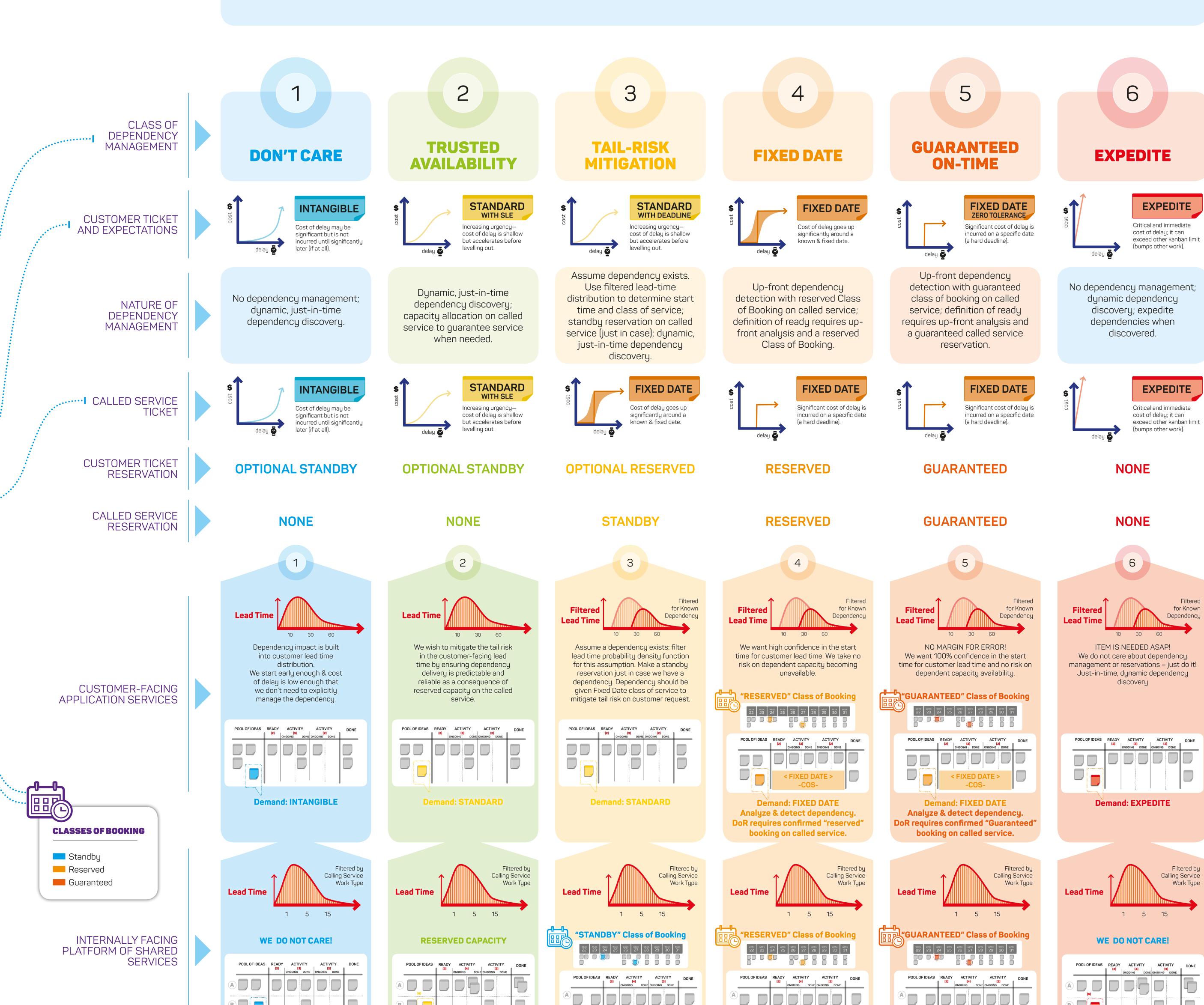
1. CHECKBOXES ON KANBAN TICKET DESIGN
2. DECORATING TICKETS TO SHOW PEER-TO-PEER DEPENDENCY
3. USE OF DATE FIELDS ON TICKETS TO SHOW INTEGRATION DEPENDENCY DATES
4. CAPACITY ALLOCATION FOR TYPES OF WORK OR SOURCES OF DEMAND
5. ROWS ON KANBAN BOARDS
6. SEQUENTIAL DEPENDENCIES SHOWN FROM LEFT TO RIGHT IN THE DESIGN OF WORKFLOW KANBAN BOARDS
7. SPLIT-MERGE BOARD DESIGN TO SHOW INTEGRATION DEPENDENCIES
8. CLASSES OF DEPENDENCY MANAGEMENT
9. CLASSES OF SERVICE
10. PARENT-CHILD DEPENDENCIES IN THE DESIGN OF TWO-TIERED KANBAN BOARDS
11. PARKING LOTS USED TO HOLD ITEMS BLOCKED DUE TO DEPENDENT WORK EXTERNAL TO THE IMMEDIATE BOARD
12. CLASSES OF BOOKING
13. DYNAMIC RESERVATION SYSTEMS
14. MAPPING SHARED SERVICES TO AN EXISTING BOARD USING A COLUMN WITH A WIP LIMIT OR AVATARS FOR INDIVIDUALS
15. TRIAGE TABLES (BASED ON PROBABLE COST OF DELAY IN STARTING)
16. MARKING BLOCKED TICKETS WITH DIFFERENT COLORS TO INDICATE THE TYPE OF DEPENDENCY
17. BLOCKER CLUSTERING
18. RISK REVIEW
19. OPERATIONS REVIEW
20. DELIVERY PLANNING MEETING

CLASS OF DEPENDENCY MANAGEMENT & CLASS OF RESERVATION

	1 — DON'T CARE	2 — TRUSTED AVAILABILITY	3 — TAIL-RISK MITIGATION	4 — FIXED DATE	5 — GUARANTEED ON-TIME	6 — EXPEDITE
CLASS OF DEPENDENCY MANAGEMENT						
CUSTOMER TICKET AND EXPECTATIONS	INTANGIBLE — Cost of delay may be significant but is not incurred until significantly later (if at all).	STANDARD WITH SLE — Increasing urgency—cost of delay is shallow but accelerates before levelling out.	STANDARD WITH DEADLINE — Increasing urgency—cost of delay is shallow but accelerates before levelling out.	FIXED DATE — Cost of delay goes up significantly around a known & fixed date.	FIXED DATE ZERO TOLERANCE — Significant cost of delay is incurred on a specific date (a hard deadline).	EXPEDITE — Critical and immediate cost of delay; it can exceed other kanban limit (bumps other work).
NATURE OF DEPENDENCY MANAGEMENT	No dependency management; dynamic, just-in-time dependency discovery.	Dynamic, just-in-time dependency discovery; capacity allocation on called service to guarantee service when needed.	Assume dependency exists. Use filtered lead-time distribution to determine start time and class of service; standby reservation on called service (just in case); dynamic, just-in-time dependency discovery.	Up-front dependency detection with reserved Class of Booking on called service; definition of ready requires up-front analysis and a reserved Class of Booking.	Up-front dependency detection with guaranteed class of booking on called service; definition of ready requires up-front analysis and a guaranteed called service reservation.	No dependency management; dynamic dependency discovery; expedite dependencies when discovered.
CALLED SERVICE TICKET	INTANGIBLE — Cost of delay may be significant but is not incurred until significantly later (if at all).	STANDARD WITH SLE — Increasing urgency—cost of delay is shallow but accelerates before levelling out.	FIXED DATE — Cost of delay goes up significantly around a known & fixed date.	FIXED DATE — Significant cost of delay is incurred on a specific date (a hard deadline).	FIXED DATE — Significant cost of delay is incurred on a specific date (a hard deadline).	EXPEDITE — Critical and immediate cost of delay; it can exceed other kanban limit (bumps other work).
CUSTOMER TICKET RESERVATION	OPTIONAL STANDBY	OPTIONAL STANDBY	OPTIONAL RESERVED	RESERVED	GUARANTEED	NONE
CALLED SERVICE RESERVATION	NONE	NONE	STANDBY	RESERVED	GUARANTEED	NONE

CUSTOMER-FACING APPLICATION SERVICES

1. Dependency impact is built into customer lead time distribution. We start early enough & cost of delay is low enough that we don't need to explicitly manage the dependency. — Demand: INTANGIBLE
2. We wish to mitigate the tail risk in the customer-facing lead time by ensuring dependency delivery is predictable and reliable as a consequence of reserved capacity on the called service. — Demand: STANDARD
3. Assume a dependency exists: filter lead time probability density function for this assumption. Make a standby reservation just in case we have a dependency. Dependency should be given Fixed Date class of service to mitigate tail risk on customer request. — Demand: STANDARD
4. We want high confidence in the start time for customer lead time. We take no risk on dependent capacity becoming unavailable. "RESERVED" Class of Booking < FIXED DATE > -CoS- — Demand: FIXED DATE. Analyze & detect dependency. DoR requires confirmed "reserved" booking on called service.
5. NO MARGIN FOR ERROR! We want 100% confidence in the start time for customer lead time and no risk on dependent capacity availability. "GUARANTEED" Class of Booking < FIXED DATE > -CoS- — Demand: FIXED DATE. Analyze & detect dependency. DoR requires confirmed "Guaranteed" booking on called service.
6. ITEM IS NEEDED ASAP! We do not care about dependency management or reservations – just do it! Just-in-time, dynamic dependency discovery. — Demand: EXPEDITE

CLASSES OF BOOKING
- Standby
- Reserved
- Guaranteed

INTERNALLY FACING PLATFORM OF SHARED SERVICES

1. WE DO NOT CARE! — Demand: INTANGIBLE. Undetermined wait: NO WIP LIMITS!
2. RESERVED CAPACITY — Demand: STANDARD. WIP LIMITS!
3. "STANDBY" Class of Booking < FIXED DATE > -CoS- — Demand: FIXED DATE
4. "RESERVED" Class of Booking < FIXED DATE > -CoS- — Demand: FIXED DATE
5. "GUARANTEED" Class of Booking — Demand: FIXED DATE
6. WE DO NOT CARE! — Demand: EXPEDITE. NO WAIT: PREEMPTS OTHER TICKETS

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