Discussion document

Project Mongoose

IT business continuity improvement

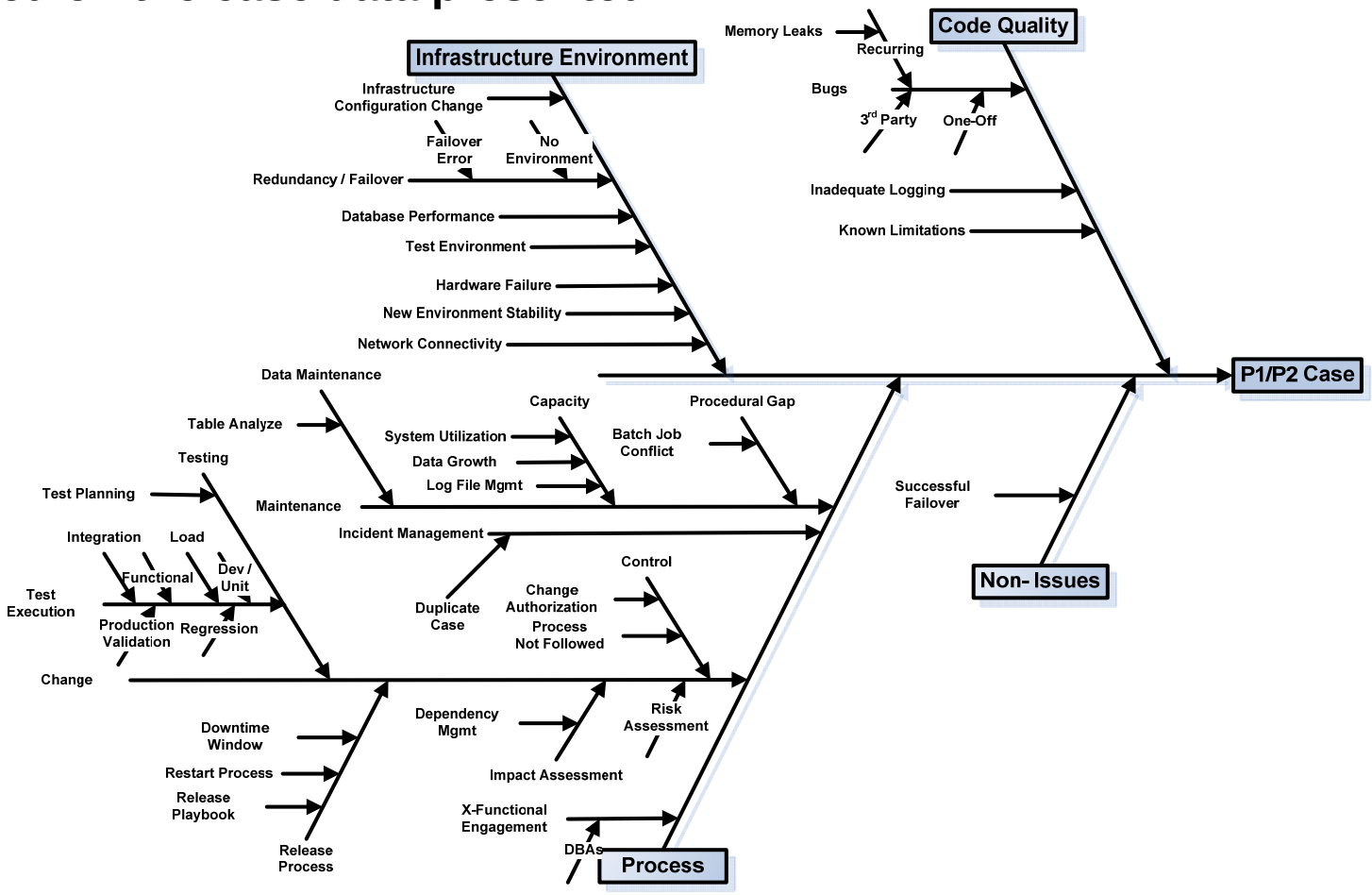
May 24, 2006

Contents

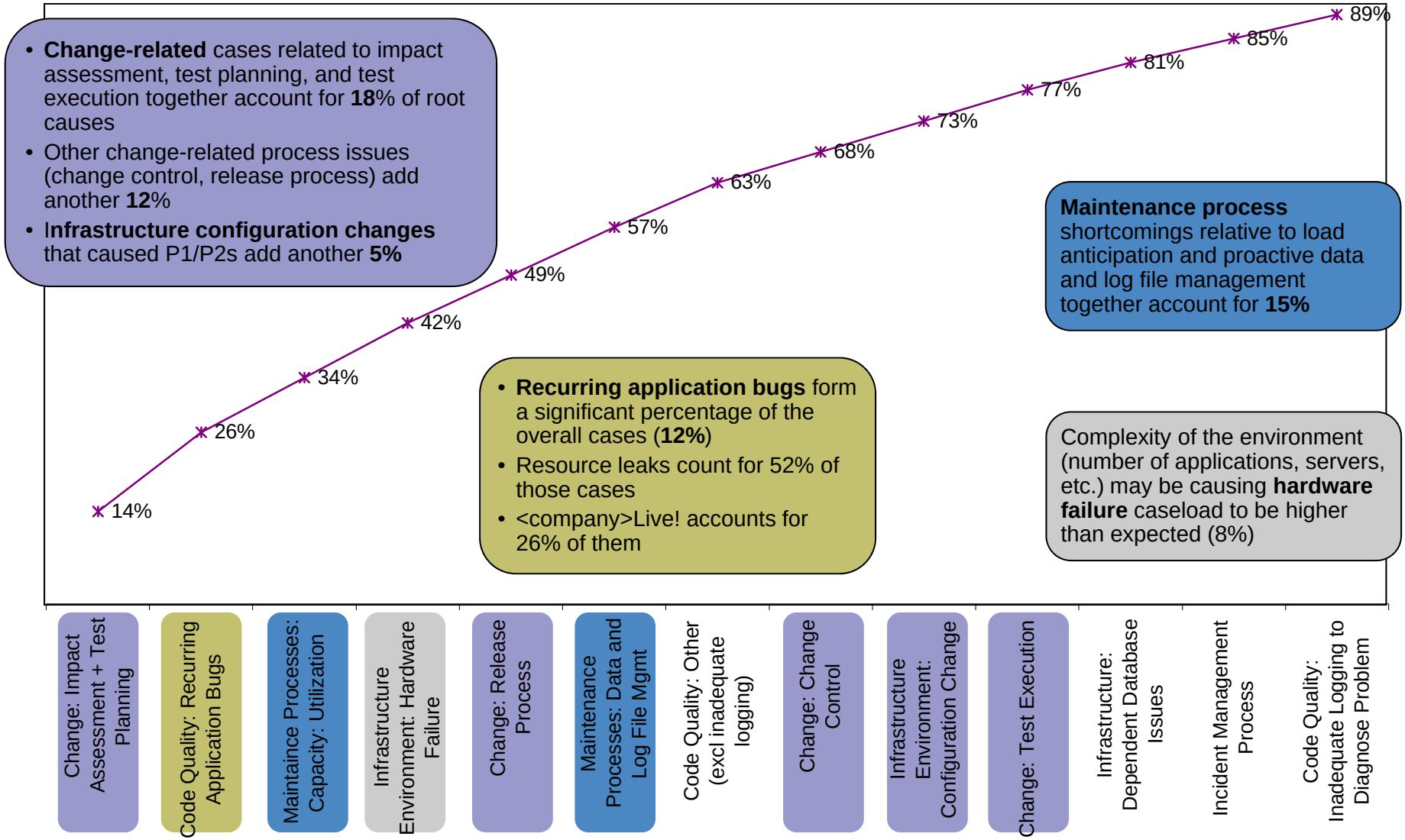
- Root cause breakdown (“fishbone”)
- Key issues and trends
- Corrective action recommendations
- Timeline
- Assumptions
- Next steps

Case root cause breakdown

The following were used as root cause categories for the analysis, based on the case data presented



Critical Issue Pareto – Cumulative Percentages



Key issue trends and volatility

Factor	High Level	Upward Trend	Volatile
Impact assessment and linkage to test planning Impact Assessment: 24; Test Planning: 3 Non-C3: 17; C3: 7 Additional 8 (not counted in this bucket) for Test Execution	**YES (3/mo)**	**YES: NON-C3**	**YES: BOTH** (C3 higher)
Recurring application bugs Total: 23 total; Resource Leaks: 12: <company>Live!: 5 Non-C3: 16; C3: 7 Four related to TSRT Query (C3), all in Dec, 3 on Dec 6	**YES (~3/mo)**	NO	**YES: C3** (non-C3 consistently high)
Capacity utilization Non-C3: 15; C3: 1	**YES (2/mo)**	**YES: NON-C3**	**YES**
Hardware failures Non-C3: 13; C3: 3	**YES (2/mo)**	NO	**YES**
Release process Non-C3: 3; C3: 11	**YES (1.75/mo)**	(DOWN)	**YES: NON-C3**
Data and log file management Data Management: 7; Log File Management: 7 Non-C3: 4 (includes two on CTSPDM); C3: 10	**YES (1.75/mo)**	**YES**	**YES**
Code quality issues other than recurring and those not diagnosed due inadequate logging Non-C3: 6; C3: 7 C3	**YES (1.63/mo)**	**SLIGHT – NON-C3**	**MED**

Corrective action identification and scoring

- **Corrective actions were identified against the most critical (top seven issues)**
  - **One lower priority issue – Inadequate Error Logging – relates to Log File management and was also included**
- **Multiple corrective actions were identified for each issue**
- **Synergies among the corrective actions were identified (e.g., same corrective action improves multiple issues) and aligned**
- **Corrective actions were scored based on Impact, Time to Impact, Likelihood of Impact, and Effort Required**
  - **All factors were weighted equally**
  - **Three value levels were used (e.g., Low/Medium/High)**
  - **Definitions for each level are included in the worksheet**
- **Corrective action summary that follows shows the highest-ranking, most immediate actions**

Further actions will be needed and are included in the detailed worksheet

Corrective action recommendations summary

Action	Action Detail	Impact Areas
1. **Institute impact assessment and link to test planning**	• Require documented **impact and risk assessment** as part of release scope planning process • Implement consistent **test planning** for all releases, linked to impact/risk assessment process	Impact Assessment and Test Planning (14%) Test Execution (4%)
2. **Prioritize and fix recurring bugs**	• Implement a focused effort to prioritize/staff, and solve existing **recurring bugs**, e.g., TSRT Query, Case Kwery, SWIFT • Increase accountability for system owners for system stability: ensure incentives support **accountability** for business continuity - not just delivering new business requirements	Code Quality (22%), particularly Recurring Bugs (12%)
3. **Define C3 data archive / retention**	• Define and implement **data archive/retention** policy for C3 • Implement **short-term performance improvements** for known problems	Data Management and Log Files (8%)

Risk assessment critical next steps

Ensuring impact assessment and test planning process changes are adopted requires <u>at least one</u> of the following:

RA.1. **Lock down the applications in Kintana*, using a gatekeeper role to:**
- Verify adequate risk/impact assessment and test plans are in place prior to migration to stage environments
- Verify the test plan has been executed with acceptable results prior to migration to production environments

RA.2. **Expand the scope of RMO and CCB to manage changes to non-C3 applications**

RA.3. **Hold system owners accountable for implementation of the process – ensure any change to their applications has risk/impact assessment performed and resulting test plan defined and executed**

RA.4. **Document key systems and interfaces, prioritized by application priority and degree of impact assessment issues**

*Applications with high case loads tend to also use Kintana. A prioritized list of applications to lock down is provided in Backup

Bug fix critical next steps

Critical next steps to address recurring bugs are the following:

BF.1.

Force a business decision on <company>Live!:

a.) Fix the outstanding bugs
b.) Retire the application (replace, consolidate), OR
c.) Downgrade the application (currently P2)

BF.2.

Drive a focused effort to implement fixes for other outstanding recurring bugs (TSRT Query, Case Kwery, SWIFT, etc.)

BF.3.

Drive accountability for system stability by aligning incentives to metrics that report, by IT manager by application:

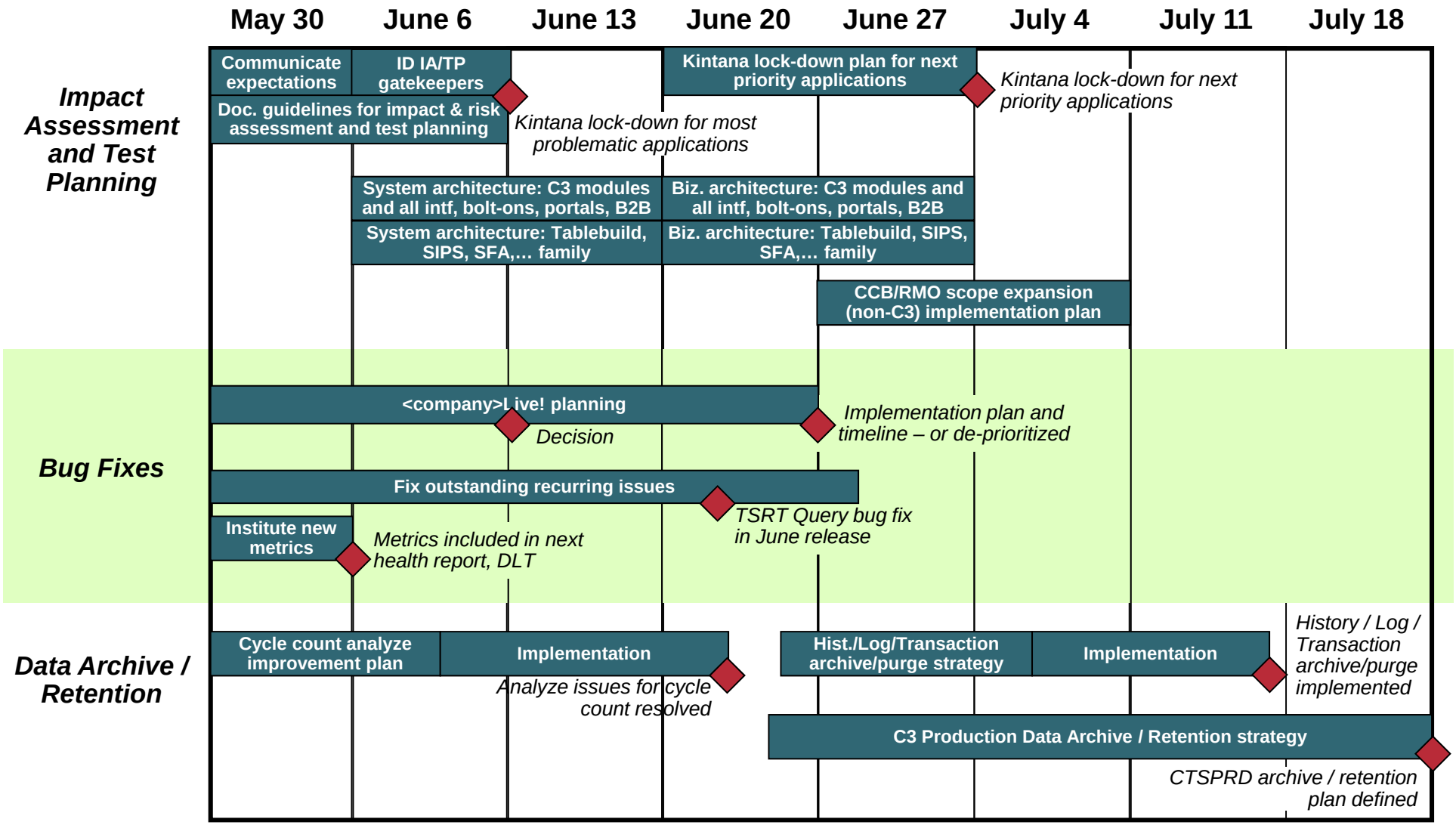
- P1/P2 cases, outages, and business impact (severity and duration)
- Hours spent per week by support performing LTF workarounds
- LTF outstanding: number and age
- Recurring bugs outstanding and closure rates

Data archive/retention critical next steps

Critical next steps for data archive/retention are the following:

DA.1.	Define and implement short-term performance improvements to address analyze issues on tables used by C3 inventory cycle count
DA.2.	Define and implement data archive / purge action plan for history, log, and transaction information in the production C3 database
DA.3.	Complete the analysis for remaining high volume data items and define and implement complete data archive/retention strategy for C3
DA.4.	Longer term: Define data archive/retention strategy for CA Unification during implementation planning and implement at go-live

Short-term implementation timeline



Assumptions

- **A person with sufficient bandwidth will be assigned to program-manage the effort**
- **Corrective actions are deemed high enough priority to ensure necessary resources are available**
- **Organizations can work together quickly to make needed changes**

Next steps

- **Corrective Actions:**
  - **Identify program management resource**
  - **Obtain additional input from other key parties**
  - **Agree or make adjustments to implementation plan**
  - **Identify and obtain needed resources**
  - **Kick-off work**
  - **Track and control**
  - **Measure results**

Suggested P1/P2 performance targets

Performance targets for business continuity to be measured along the following four dimensions:

Metric	Baseline*	Target (by Q1-end)
1. **Number of business-impacting P1/P2 cases**	~4.2 per week	< 8 per four weeks (average of 2/wk)
2. **Percent of cases that are recurrences**	~28%	< 10%
3. **Business impact total score (severity x duration)**	High: ~1 per week Medium: ~3 per week Low: ~2 per week	High: 1 per four weeks Medium: 5 per four weeks Low: 6 per four weeks
4. **Total number of P1/P2 cases**	~5.7 per week	< 12 per four weeks (average of 3/wk)

Note: *Moving windows are used to account for natural volatility in the caseload. I.e., due to random events, cases may occur closely in time followed by a quiet period. Overall business continuity results may be more accurately reflected by smoothing out some of the natural variation*

* As of 07May06

Corrective action task owners

Risk / Impact Assessment

Area	#	Action	Task	Owner
Impact Assessment	RA.1	Kintana lock-down	Communicate expectations and timeline regarding impact and risk assessment and test planning	Colleen / Steve
			Identify gatekeepers for initial application lock-down list	IT managers
			Document guidelines and minimum criteria for impact and risk assessment	PM or RMO
			Lock down the applications in Kintana, using a gatekeeper role to verify adequate risk/impact assessment and test plans are in place prior to migration to stage environments	IT managers
			Identify list of applications next in priority for lock-down and timeline	Chris Thomas
	RA.2	CCB / RMO scope expansion	Define plan to expand the scope of RMO and CCB to manage changes to non-C3 applications	Roger Douglas
			Implement plan	Roger Douglas
	RA.3	Accountability	Hold system owners accountable for implementation of the process – ensure any change to their applications has risk/impact assessment performed and resulting test plan defined and executed	Colleen / Steve
	RA.4	Documentation	Document system architecture that encompasses C3 modules, interfaces, bolt-ons, portals, B2B, and other interconnections	Joe Mastropolo
			Document business architecture that encompasses business data flow among C3 modules, interfaces, bolt-ons, portals, B2B, and other interconnections	Joe Mastropolo
			Document system architecture that encompasses Tablebuild, SIPS, SFA family of systems, including components, interfaces, and interconnections	Joe Mastropolo
			Document business architecture that encompasses business data flow among Tablebuild, SIPS, SFA family of systems, including components, interfaces, and interconnections	Joe Mastropolo

Corrective action owners (continued)

Recurring Bugs

	#		Task	Owner
	BF.1	<company>Live!	Force business decision	Ed Freeman
			Implementation plan or de-prioritization	Ed Freeman
	BF.2	Outstanding recurring bugs	TSRT Query: Resolve large file upload problem (cases 3922716, 3939229, 3938747, 3935934)	Ed Freeman
			Case Kwery: Investigate and resolve suspected memory leak (cases 4289514, 4271465)	Ed Freeman *(was Mike Grace)*
			Identify status of SWIFT case 3972505. Case information points to I2R 3329, which was implemented last fall (Sept/Oct) before the case occurred (December). Second SWIFT case (4043533) was categorized similarly but had a different I2R #, and was marked as implemented in February.	Sanjay Khera
			Drive resolution with MCA Solutions regarding SPO cases related to database connection failures (cases 3763698, 3899671, 4450313. All related to database connections, but may have different causes. None are marked as LTF implemented)	Ed Freeman *(was Mike Grace)*
			Resolve SVO Dispatch memory leak (case 3759022)	Ed Freeman *(was Mike Grace)*
Bug Fixes	BF.3	Accountability	Drive accountability for system stability by aligning incentives to metrics that report, by IT manager by application…	Colleen / Steve (incentives) Chris Thomas (metrics reporting)

Corrective action owners (continued)

Data Archive / Retention

	#		Task	Owner
Data Archive / Retention	DA.1	Cycle count analyze	Define and implement data archive/purge or performance improvements to address failures in C3 cycle count analyze process	Ed Freeman
			Implement plan to address long term fix for cycle count analyze issues	Ed Freeman
	DA.2	C3 History, Log, Transaction data growth	Define data archive / purge action plan for history, log, and transaction information in the production C3 database	Ed Freeman
			Implement C3 data archive/purge/retention plan for history, log, and transaction information	Ed Freeman
	DA.3	C3 Archive / Purge / Retention	Complete the analysis for remaining high volume data items and define and implement complete data archive/retention strategy for C3	Ed Freeman
	DA.4	CA Unification	Longer term: Define data archive/retention strategy for CA Unification during implementation planning and implement at go-live	Ed Freeman

Backup

Impact and risk assessment priorities

- **The applications in the table below are the highest priority applications for which the impact and risk assessment corrective actions must be taken**

  Actions: Kintana lock-down, inclusion in CCB/RMO, architecture documentation:

Application	Cases	Application Priority	IT Manager	Kintana?
C3 – All modules	4	P1	Ed Freeman & Mike Grace	Yes
Machine Translation (e.g., MTP)	2	P1 or **P2***	Stephen Liem	Yes
Tablebuild**	2	P1	Wilson Shiu	Yes
SFA**	3	**P1** or P2*	Wilson Shiu	Yes
C3 B2B	1	P1	Mike Grace	Yes
SitePublish**	1	P1	Wilson Shiu	Yes
Topic/Google	1	P1	Stephen Liem	Yes
SVO Status	1	P1	Mike Grace	Yes
SIPS**	1	P2	Wilson Shiu	Yes
CCRT	2	P2	Sanjay Khera	No

** Discrepancy among data sources; bold value is from application repository*
*** These applications are organized / reported differently (i.e., sometimes together) depending on source*

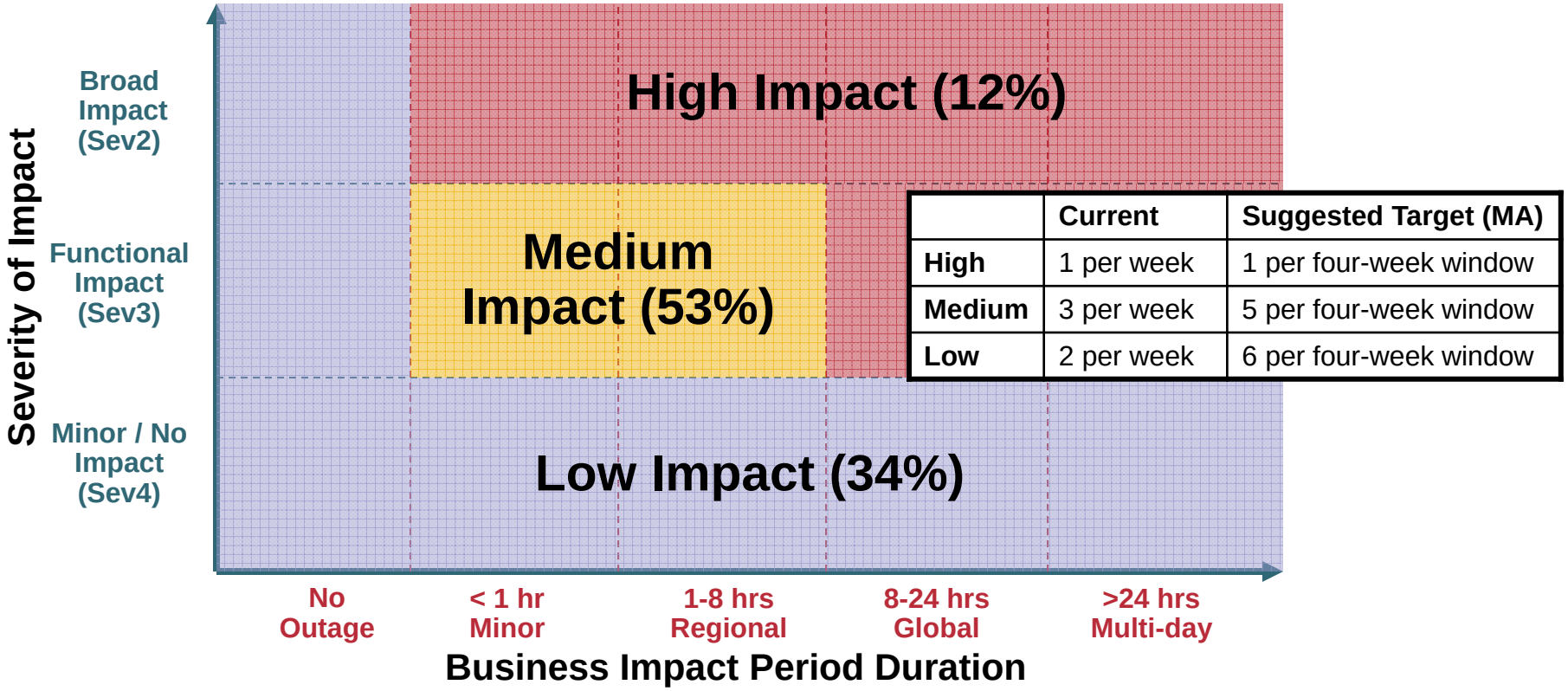
Bug fix priorities

- **The following applications have open cases identified as recurring bugs:**

Application	Cases	Application Priority	IT Manager
TSRT Query	5	P1	Ed Freeman
Case Kwery	2	P2	Ed Freeman
SPO	2	P2	Mike Grace
SVO Dispatch	1	P1	Mike Grace

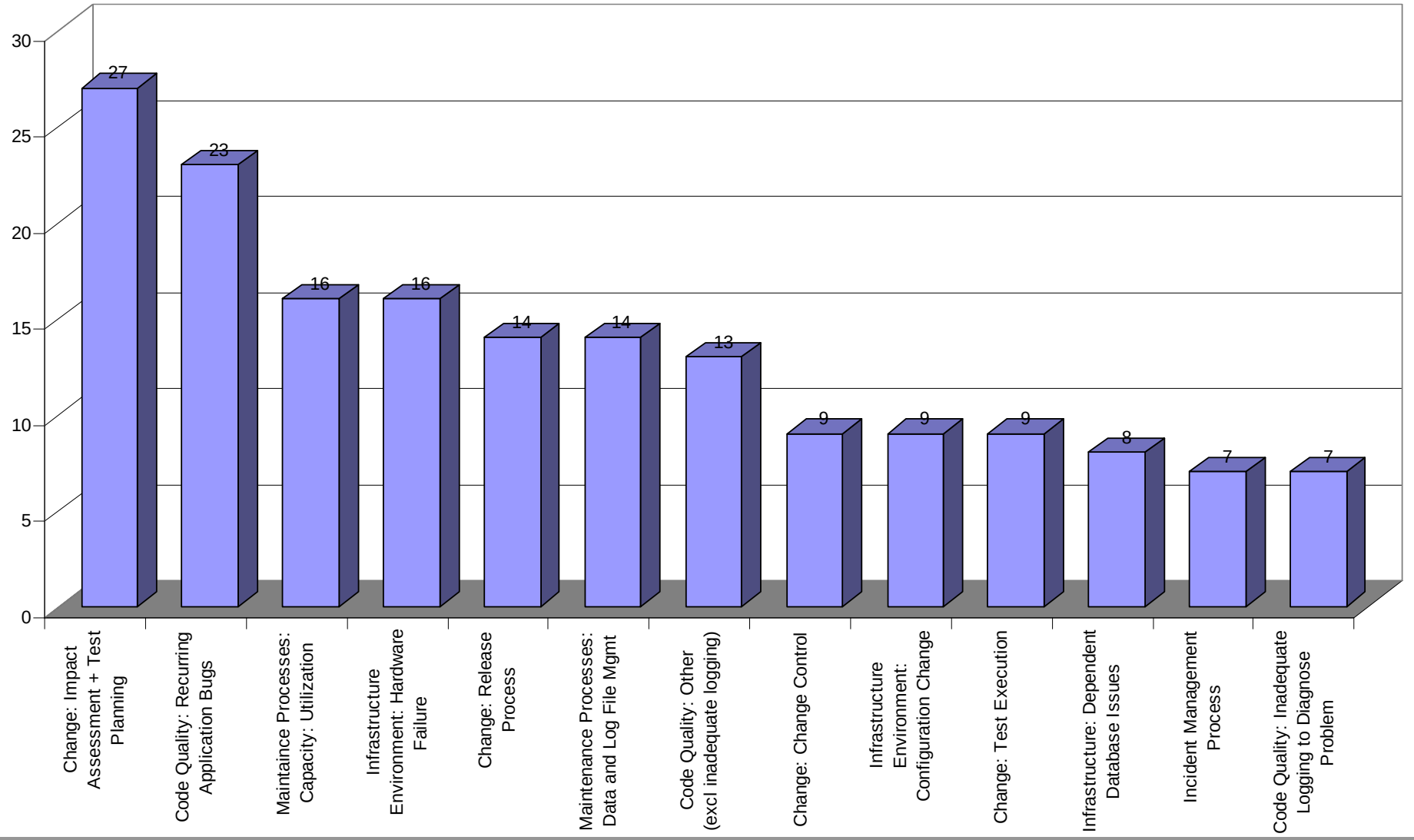
Suggested P1/P2 performance targets

Performance targets for business continuity to be measured along the following three dimensions

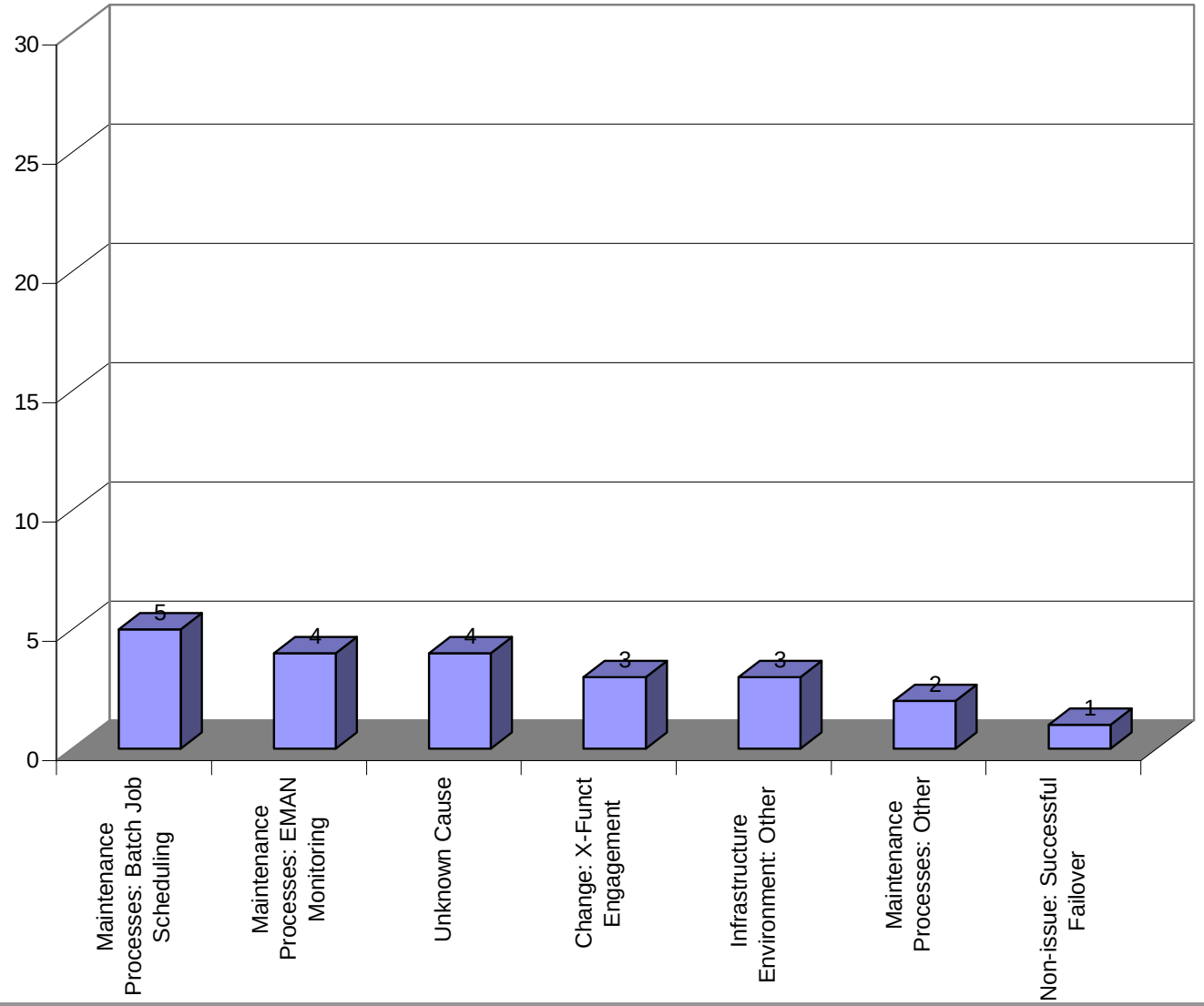


	Current	Suggested Target (MA)
High	1 per week	1 per four-week window
Medium	3 per week	5 per four-week window
Low	2 per week	6 per four-week window

Critical issue case numbers (page 1 of 2)



Critical issue case numbers (page 2 of 2)



Other observations – RCA Process

- **RCA as currently implemented is not particularly well-suited for identifying and addressing non-technical root causes**
  - **Root cause analysis is performed on a case-specific basis by lead owner for the case with other technical participants**
  - **Root cause analysis appears to be very technical in nature, and less likely to identify true root causes for process and organization engagement deficiencies – and therefore less likely to result in needed changes**
    - **Identified root cause may reflect technical causes rather than underlying "root" cause**
    - **LTF may not address the underlying problem, as the case players have little direct influence to change higher-level issues**
- **These issues may be better identified by analyzing data across cases at a higher level – probably by other roles**
  - **Implementation of a real fix for those types of issues requires involvement of other roles and higher levels of the organization**
- **The current approach limits the overall impact that the RCA process will have within <company>**
- **Consider: Discussing RCA process improvements with EIO**

Other observations – P1/P2 categories

As identified prior, the current categorization does not accurately reflect business continuity

- **Reflects priority of the application more than priority of the case**
- **Does not identify whether there actually *was* any business impact**
- **Does not quantify the impact (revenue lost, productivity lost – or even duration of outage)**
- **Priorities cannot be reduced once set to an inappropriate level**

As such, the statistics are of little help in gauging actual continuity results

- **Primary value at this point seems to be as a benchmark to compare whether corrective actions have had an effect**

Consider: Case prioritization scheme that reflects the actual priority of the specific case