Audit Report

Austin City Council

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**Performance Audit of the
CUSTOMER CARE & BILLING SYSTEM
PROJECT MANAGEMENT**

February 3, 2011

Office of the City Auditor
Austin, Texas

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City of Austin

Date: February 3, 2011

To: Mayor and Council

From: Kenneth J. Mory, City Auditor

Subject: Performance Audit of Customer Care & Billing System Project
            Management

I am pleased to present this audit report on project management of the Customer Care &
Billing System. This audit was conducted as part of the Office of City Auditor's FY11
Service Plan.

We found that the Customer Care & Billing (CC&B) project is behind schedule, which
may result in late delivery, reduced functionality, or cost overruns. During the final
stages of this audit, management initiated a discussion of the feasibility of the planned
April 4th 2011 go-live date. At this time, the Stakeholder Review Board has
recommended that project leadership move the go-live date to October 2011, but a formal
decision has yet to be made. In addition, we identified the absence of formal contingency
planning and the lack of independent quality assurance, which are recommended
elements of project management best practices. Further we noted that two milestone
payments were not paid in compliance with the contract terms.

We support management's decision to revisit the go-live date and recommend that project
management validate the new go-live date with regard to risks, costs, and likelihood of
completion. In addition, we recommend that project management address any departures
from recommended project management best practices identified through this audit.
Management concurred with both recommendations.

cc: City Manager
            Assistant City Managers
            Austin Energy General Manager
            Public Information Officer

COUNCIL SUMMARY

This report presents the results of the Customer Care & Billing, Phase I: Project Management audit. The City is replacing its existing utility billing system, Customer Information System (CIS), with an Oracle's Customer Care and Billing (CC&B) system. Implementation of this new system is scheduled for April 4th 2011. This is a citywide project, conducted under the leadership of Austin Energy.

We found that the CC&B project is behind schedule, which may result in late delivery, reduced functionality, or cost overruns. During the final stages of this audit, management initiated a discussion of the feasibility of the planned April 4th 2011 go-live date. While the project's Stakeholder Review Board has recommended that project leadership move the go-live date to October 2011, a formal decision has yet to be made. Further, we identified the absence of formal contingency planning or fallback planning and the lack of independent quality assurance, which are recommended elements of project management best practices. Finally, we found that two milestone payments were not paid in compliance with contract terms.

We support management's decision to revisit the go-live date and recommend that project management validate the new go-live date with regard to risks, costs, and likelihood of completion. In addition, we recommend that project management address departures from project management best practices identified through this audit. Management concurred with both recommendations.

ACTION SUMMARY
CUSTOMER CARE & BILLING
TABLE OF CONTENTS

	Recommendation Text	Management Concurrence	Proposed Implementation Date
1.	We support management's decision to revisit the go-live date and recommend that the CC&B project management validate the new go-live date with regard to risks, costs, and likelihood of completion.	Concur	February 2011
2.	We support the adoption of PMBOK for management of the CC&B project, and therefore CC&B project management should address any departures from PMBOK with the Executive Steering Committee and/or Austin Energy General Manager as appropriate.	Concur	February 2011

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TABLE OF CONTENTS

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BACKGROUND

The City of Austin is replacing its existing utility billing system, Customer Information System (CIS), with an Oracle's Customer Care and Billing (CC&B) system. This is a citywide project, conducted under the leadership of Austin Energy. Implementation of the system is scheduled for April 2011. The CC&B system is being implemented and hosted by IBM under a $51,515,323 eight-year contract signed in May 2009.

The new system is expected to improve customer service by providing more detailed billing information via a web-interface, reducing the price-per-bill, and providing the City with a more robust technology and software platform.

Austin Energy (AE) is responsible for producing utility statements that reflect charges for all City utility services. The charges included on the utility bill reflect metered consumption for electricity (managed by Austin Energy), water and wastewater (managed by Austin Water Utility), and garbage carts based on size (managed by Solid Waste Services). The AE bill also includes miscellaneous fees and charges, such as initiation of service fees, tampering fees, late payment fees, and extra garbage bag fees. Finally, the bill includes pre-determined monthly fees for "non-metered" services provided by the City.

The CC&B project team includes representatives from the following departments:
- Austin Energy
- Austin Water Utility
- Solid Waste Services
- Watershed Protection
- Controller's Office
- Austin Police Department, and
- Transportation Department.

OBJECTIVES, SCOPE, AND METHODOLOGY

The CIS Replacement Project audit was conducted as part of the Office of City Auditor's FY11 Service Plan, as presented to the Council's Audit and Finance Committee. This audit originated as a request from City Council and City Management.

Objectives
Our overall audit objective was to evaluate project management to identify potential risks to the successful implementation of the CIS replacement system with regard to functionality, controls, and performance. For this phase of our work, we focused on aspects of project management including change management, contingency planning, and quality assurance.

Scope
The audit focused on the project management activity in the execution phase of the systems development process for the CIS Replacement Project.

Methodology
To accomplish our audit objectives, we performed the following steps:
- Identified and reviewed best practices information relating to IT project management
- Reviewed documentation relating to the CIS Replacement Project management including applicable contracts, reports and, other pertinent documents
- Conducted interviews with key parties including Austin Energy management, project managers, IBM representative, and staff in applicable departments

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

SUBSEQUENT EVENT: During the final stages of our audit, project management began a discussion on the feasibility of the April 4th go-live date. Specifically, on January 10, 2011, we attended the CC&B Executive Steering Committee (ESC) meeting. During this meeting ESC members discussed the project status and directed the Stakeholder Review Board (SRB) to review the status of the project, consider whether the April 4, 2011 was still a viable go-live date, and if not, propose an alternative date. The SRB met on January 11, 2011 and came to the conclusion that the go-live date of April 4, 2011was not feasible to complete the project with the necessary functionality and quality assurance. The SRB met again on January 13, 2011 and agreed upon October 2011 as the proposed new go-live date. The ESC is responsible for making a final decision, and has not yet done so at this time. See Appendix B for additional information on the discussion around the go-live date and an update on the project risks.

While we support management's decision to reconsider the go-live date, we maintain that many of the same risks are applicable to the ongoing project, although the impacts may be different as a result of a later in the go-live date.

There are three generally accepted variables of a project which one needs to manage for its successful completion. These are **Scope** (what needs to be built), **Time** (time required to get it built) and **Cost** (funds required to build to the desired project). Based on this "triple constraint theory" or "triple constraint triangle", there is interdependency between the constraints of a project; change in any one of the variable can affect the other variables or the **Quality** of the project. The two most frequently compromised constraints are scope and/or time. If scope is compromised to meet time with the same resources, the quality of the project is affected.

EXHIBIT 1
Triple Constraint Triangle

SOURCE: Triple Constraint - Global Knowledge
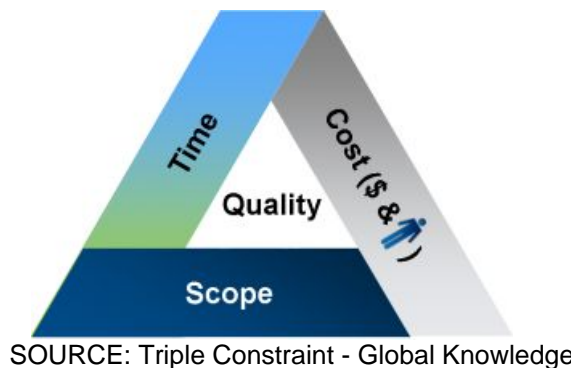
Finding 1: The Customer Care & Billing (CC&B) project is behind schedule, which may result in late delivery, cost overruns, or reduced functionality.

Based on our audit work, we have observed that the CC&B project is several months behind schedule. As shown in Exhibit 2 the Design, Build, and Test phase was planned to be completed by the end of October 2010. However, this phase has not been completed as of January 2011. Given that the Acceptance Phase of the project cannot begin until the current phase is completed, substantial delays in the completion of the Design, Build, and Test phase may impact the go-live date, planned for April 4, 2011.

EXHIBIT 2
Customer Care and Billing System Project Key Milestones

| Planning | Assessment | Design/Build/Test | Acceptance | Deployment |
| June 2009 – August 2009 | August 2009 – January 2010 | January 2010 – October 2010 | November 2010 – February 2011 | February 2011 – April 2011 |

SOURCE: http://cityspace.ci.austin.tx.us/services/csp/csp-project

Risk of late delivery
Per project management, two main components of the project which are behind schedule are project architecture and interfaces. The project architecture includes systems software, physical infrastructure, and security. Project management indicated that Austin Energy is upgrading such infrastructures and the upgrade is currently behind schedule. Development of interfaces is also behind schedule. Although we have not confirmed it, project management and staff indicated that resources have recently been added to mitigate this risk.

We have divided interfaces into the following categories:
- Financial interfaces, which enable the system to receive payments and to post such payments to the City financial system;
- Field Management interfaces, which allow the system to track, for example, maintenance activities performed on electric and water meters;
- Meter Read interfaces, which enable the system to receive electric and water consumption information; and
- Others, which includes interfaces to the City addressing system and the phone system used to support customer care.

Our review of project documentation indicates that interface development is significantly behind schedule. Until the interfaces are fully developed, integration testing, which verifies proper execution of the entire application components in an end-to-end fashion, cannot be performed. Similarly, system stress testing and acceptance testing are dependent on all functionalities being in place. Based on discussions with project management, interface development is currently expected to be completed by the end of January/early February 2011.

Risk of cost overruns

As mentioned above, these delays may impact the April go-live date, which in turn may result in project cost overruns. Project management has asserted that alternative courses of action, including cost scenarios, have not yet been developed.

Costs associated with extending the project include:

- The cost of maintaining IBM resources;
- Costs related to the possible need for extending the agreement with the current vendor to support the existing billing system (CIS) past its scheduled expiration of October 2011; and
- The opportunity cost of maintaining the City resources on the CC&B project versus other value-added projects.

Further, as indicated in the CC&B contract, the go-live date is constrained by summer black-out months, due to a high volume of student move-ins and move outs. The contract identifies the following dates as possible go-live dates following April:

- o Second half of June
- o July
- o Second half of September
- o First half of October
- o November

Additionally, delays in the implementation of the new billing system could impact other related projects.

Risk of reduced functionality

CC&B project management has been surfacing and discussing possible risks impacting the success of the project since July 2010. Project architecture, schedule, and build are among the issues which have been flagged as "yellow" since July 2010. However, despite red and yellow flags, we could not identify any formal discussion or consideration given to alternatives to going live in April. Exhibit 3 shows the risks discussed at the November and December 2010 project leadership meetings.

The lack of a formal evaluation of alternatives to the planned go-live date raises concerns regarding the ability of the project to deliver all planned functionalities within the remaining time. In addition, stakeholders surveyed by project management in November 2010 indicated that stakeholders were concerned about their lack of awareness and involvement in project decisions. Further, during our interviews, a few stakeholders indicated that project management had informally communicated to them about possible deferrals.

EXHIBIT 3
Stakeholder Review Board Updates
November 2010 and December 2010

SOURCE: CC&B Project Management, November 9, 2010 and December 14, 2010.

In February 2010, 25 of the requirements originally planned for incorporation into the CC&B system were deferred until after go-live with the approval of the Stakeholder Review Board. As of January 10, 2011, we have identified in Workbench, the project tracking tool, a small number of requirements for which the design phase has not been completed yet. Possible deferral of these requirements has not been discussed or voted on by members of the Stakeholder Review Board. Given that the design of these requirements has not been competed yet, it seems unlikely that they will be included as part of the go-live functionality.

Finding 2: CC&B project management lacks some best practice elements related to project planning and quality management.

The CC&B project adopted PMBOK[1], a best practice methodology, in the development of project plans, processes, and strategies. As part of our audit work we confirmed that project management has developed a variety of project plans, such as communication, data conversion, change management, and training, as required by PMBOK standards. However, given that our audit was performed during the implementation of the new system, we were unable to perform detailed testing to confirm that the controls had been carried out as designed and, as such, we cannot speak to their efficacy. As discussed below, we have identified some departures from recommended best practices in relation to project planning and quality management.

Project planning lacks some elements of best practices related to contingency and fallback planning. Best practices require continuous project planning on a timely basis to address risks such as delays in meeting key milestones or missing intermediate milestones, budget overruns, or project failure. Risk Response Planning is the process of developing various options, strategies and actions to enhance or exploit opportunities and

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[1] Project Management Body of Knowledge (Project Management Institute).

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to reduce or eliminate threats to project objectives. Two elements of risk response planning are contingency and fallback planning.

- Contingency planning is targeted at potential events that, if they occur, could negatively impact the project. It specifies that actions are carried out at the time of risk occurrence.
- Fallback planning is directed to a known, specific activity that could fail to produce the desired outcome. When the contingency plan for a risk is not fully effective, the team should implement a fallback plan, which is a plan for an alternative course of action that can be adopted to overcome the consequences of a risk.

We noted that management has a system in place for the CC&B project to identify risks. Our review of the documentation for the Executive Steering Committee and the Stakeholders Review Board meetings showed that management has been communicating risks and issues to stakeholders during those meetings. However, despite contingency plans being called for in the CC&B Risk Management Plan Strategy, we did not see evidence of a formal contingency plan. Similarly, project management asserted that they do not have a fall-back plan, rather they indicated that these plans are currently being drafted as part of the detailed implementation plan, which, according to management, is expected to be completed by the end of January 2011. However, it should be noted that Austin Energy has the ability to continue to rely on its current billing system until October 2011, and possibly negotiate a contract extension past that date.

Without a comprehensive risk response system in place, which would include contingency and fallback planning the project may be vulnerable to significant risks. This may result in cost overruns and/or a project that does not fulfill stakeholders' needs.

Formal decisions at the end of major milestones to assess the readiness to move to the next phase were not performed during the Design, Build, and Test phase, a best practice approach. Best practices indicate the need for formal decisions at the end of major milestones to assess the readiness to move forward with the project. Such approval points are referred to as "Go/No-Go" decisions.

Project management has indicated that assessments were made at the end of the Planning phase and the Assessment phase. However, whereas the project plan identified only one milestone for each of these two phases, the current phase, Design/Build/Test phase, has four milestones. Project management has indicated that they have not been exercising "Go/No-Go" decisions, rather they "have always assumed go." Project management further indicated that such a decision will only be made prior to go-live.

Without such decision points, where significant departure from the original plan could be identified and specific recommendations or planning revisions made, it becomes more difficult to manage uncorrected issues. Problems may continue to build up and be addressed without a comprehensive strategy and without the timely involvement of all stakeholders. In this regard, a recent survey of stakeholders conducted in November 2010 by project management indicated concerns regarding the lack of stakeholders' awareness and involvement in project decisions.

The Quality Assurance process is not conducted by an independent team, a best practice approach. Best practices call for a system of Quality Management which includes the following three components: Quality Planning, Quality Assurance, and Quality Control. These components are defined as follows:

- Quality Planning: The process necessary for identifying which standards are relevant to the project and determining how to satisfy those standards.
- Quality Assurance: The process for applying planned, systematic quality activities to ensure the project is employing the processes necessary to meet requirements.
- Quality Control: The process necessary for monitoring project results to determine if they comply with pre-determined quality standards and identify ways to eliminate unsatisfactory performance (corrective actions).

Further, best practices identify the quality related responsibilities which are detailed in the Exhibit 4 below.

Exhibit 4
Quality Management: Roles and Responsibilities

Role	Responsibilities
Project Manager	Ultimate responsibility for quality on project and for development and execution of Quality Management plan
Analyst and Technical SMEs	Technical requirements development, design quality, quality control, test, reviews
Senior Management	Organization project management and quality policies
Quality Assessment Team	Independent reviews, assessments, and feedback
Project Team Members	Responsible for quality of work assigned, define project quality standards
Change Control Board	Reviews and approves or rejects any changes to scope and or/project deliverables

SOURCE: Project Management Institute, 2008.

Based on our review of project documentation and discussions with project management, quality assurance in the CC&B project is not conducted by a group independent from the project team. Rather, it is performed by the project manager and project team members, who may not be perceived as objective and independent.

Further, project management indicated that quality assurance is limited to testing of functionality of the application, further limiting its effectiveness. Other appropriate quality assurance areas include internal controls, system audit trails, adherence to project management policies, development of user manuals, systems operations manuals, administrative manuals, training, and others.

We identified two payments which were not made in compliance with contract terms. Based on the CC&B contract, milestones payments should only be made after all

deliverables relating to the milestone have been reviewed and formally accepted by the City. However, project management made partial payments for the acceptance of the Assessment phase milestone. Additionally, project management has recently authorized a partial payment related to the acceptance of the Design, Build, and Test Phase deliverables, the current phase. If payments are authorized prior to all phase deliverables being reviewed and approved, project management is weakening contract controls designed to assure quality and timely completion of contract deliverables.

Recommendations:

The recommendation listed below is a result of our audit effort and subject to the limitation of our scope of work. We believe that these recommendations provide reasonable approaches to help resolve the issues identified. We also believe that operational management is in a unique position to best understand their operations and may be able to identify more efficient and effective approaches and we encourage them to do so when providing their response to our recommendation. As such, we strongly recommend the following:

1. We support management's decision to revisit the go-live date and recommend that the CC&B project management validate the new go-live date with regard to risks, costs, and likelihood of completion.

MANAGEMENT RESPONSE: Concur

A decision will be made by the project Executive Steering Committee (ESC) based on the risks/likelihood of completion, cost, and scope (the "triple constraint") to determine the go-live date.

2. We support the adoption of PMBOK for management of the CC&B project, and therefore CC&B project management should address any departure from PMBOK with the Executive Steering Committee and/or Austin Energy General Manager as appropriate.

MANAGEMENT RESPONSE: Concur

The PMBOK™, as with any best practices framework, encourages the localization of the practices based on the needs of the organization and specifics of the project. Departures of a significant impact will be reviewed and addressed with the project Executive Steering Committee and/or AE General Manager as appropriate.

APPENDIX A

MANAGEMENT RESPONSE

MEMORANDUM

TO: Kenneth J. Mory, City Auditor

FROM: Larry Weis, General Manager

DATE: **January 24, 2011**

SUBJECT: Response to Performance Audit of the Customer Care & Billing
           System Project Management

Attached please find Austin Energy's response to the performance audit of the
Customer Care & Billing System Project Management. Austin Energy has carefully
reviewed the performance audit and concurs with the two recommendations.

The project team is currently revisiting the impact of the go-live date with a decision
by the project Executive Steering Committee (ESC) planned for February 2011.
Additionally, Project Management Book of Knowledge (PMBOK) departures of a
significant impact will be reviewed and addressed with the project ESC as
appropriate.

Austin Energy appreciates the collaboration of the City Auditor's Office to limit the
impact of this performance audit on the project teams.

ACTION PLAN
Customer Care & Billing System Project Management

Rec #	Recommendation Text	Concurrence	Proposed Strategies for Implementation	Status of Strategies	Responsible Person/ Phone Number	Proposed Implementation Date
01	We concur with management's decision to revisit the go-live date and recommend that the CC&B project management validate the new go-live date with regard to risks, costs, and likelihood of completion.	Concur	A decision will be made by the project Executive Steering Committee (ESC) based on the risks/likelihood of completion, cost, and scope (the "triple constraint") to determine the go-live date.	Underway	Alan Claypool, Austin Energy CIO, 512-322-6401	Feb 2011
02	We support the adoption of PMBOK for management of the CC&B project, and therefore CC&B project management should address any departure from PMBOK with the Executive Steering Committee and/or Austin Energy General Manager as appropriate.	Concur	The PMBOK™, as with any best practices framework, encourages the localization of the practices based on the needs of the organization and specifics of the project. Departures of a significant impact will be reviewed and addressed with the project Executive Steering Committee and/or AE General Manager as appropriate.	Underway	Alan Claypool, Austin Energy CIO, 512-322-6401	Feb 2011

Office of the City Auditor
1/24/2011

APPENDIX B

CC&B PROJECT
STAKEHOLDER REVIEW BOARD
PROJECT UPDATE AND GO-LIVE DISCUSSION
JANUARY 2011

Project Status Summary

Project Goal

CIS Replacement implementation by April 4, 2011

* Print and Mail Bills
* Get reads into CC&B and book revenue
* Provide CSR tools needed
* Provide Web tools for external customers
* Provide a foundation for the future

Status Highlights – Overall (R)

Project Governance: **G** ⇔	Resources: **Y** ⬆	Schedule: **R**
Scope: **G** ⬇	Team Morale: **G** ⇔	Build: **R**
Change Management: **G** ⇔	Architecture: **Y**	Conversion: **Y** ⇔
Transition Readiness: **G** ⇔	Hosting Stability: **G** ⇔	Testing: **R**

G Few/No Issues   **Y** Issues of Which to Be Aware   **R** Issues Requiring Immediate Attention

⬆ Improving   ⇔ Stable   ⬇ Worsening

Key Phase Milestones	Plan End Date	New End Date	Status and Mitigation
Design, Build Phase MAW	02/04/10	-	Complete
Converted Data Delivery	09/20/10	-	Complete
System Testing Complete	08/25/10	-	Complete
Wave 1 and 2 Interfaces Complete	11/08/10	01/31/11	Build and testing in progress
Integration Testing Complete	12/03/10	03/06/11	Testing in progress
Training and Support Materials	11/30/10	-	Complete
Design Build and Test Complete	12/03/10	02/07/11	In progress
UAT Begins	12/10/10	03/07/11	Not started
Wave 3 Interfaces Complete	12/10/10	01/31/11	Build and testing in progress
Portal development Complete	02/15/11	02/15/11	On track
CC&B UAT Complete	02/28/11	03/18/11	Not started
Portal UAT Complete	03/16/11	03/16/11	Not started
Dress Rehearsal #1	01/31/11	02/14/11	Not started
Dress Rehearsal #2	02/28/11	03/07/11	Not started
Go-Live	04/04/11	04/04/11	At risk, Mitigate Issues

Budget Status

- Services and Software through December is $24,764,316
- Expenses through November travel are $1,468,421 ($2,745,785 budgeted through November)
- Amounts paid to MBE/WBE through December – $8,949,434

Key Activities/Issues/Risks

- Scope shown as worsening to provide awareness of several new PCRs in work and the expectation of being available at go-live. SRB action requested: none
- Resources are still a concern; all known resource needs have been filled; additional needs are dependent on findings within current work underway. City audit reducing available resources. SRB action: none
- Architecture Yellow: recent PCR for Dev/Test environment changes. Work not complete. SRB action: none

- Schedule Red: no margin for error or delay. High number of remaining activities, primarily in area of interfaces with CC&B. SRB action: acute awareness to help mitigate teams potential barriers/challenges
- Build Red: interface effort and testing with CC&B; unknown levels of effort/dates. SRB action: same as above
- Conversion changed Green to Yellow: multiple Test Problem Reports (TPRs)—software defects—occurred. SRB action: none.
- Testing Red: compressed timeline due to project delays. Testing approach has to be revisited. SRB action: review plan and dates

January 13, 2011

Overview

Focus	April 4	June 6	July 5	October 3
Scope / Value •Base •PCRs	• Not all interfaces delivered • No functional PCRs delivered	• Several interfaces not delivered, parallel development and testing • Some go-live PCRs • Additional testing time	• Interfaces complete • Go-live PCRs ready • More development and testing time	• Interfaces complete • Majority of PCRs delivered • More development, testing and stabilization time
Risk •Execution •Business	• Interfaces, Conversion, Environments all at risk • Testing inadequate • Defect remediation time inadequate • No training impact • Unknown work-arounds due to un-finished functionality, interfaces, PCRs and defects • Customer bills impact • Data quality at risk • Unrealistic work-load demands	• Interface development still at risk • Parallel dress rehearsals with Build • New training approach needed • Work-arounds needed for PCRs and possibly some interfaces • Customer bills impact • Parallel development with testing efforts	• Interfaces s/b done • New training approach needed • Some work-arounds	• Better opportunity for majority of PCRs to be delivered and tested • New training approach needed • Less work-arounds • Vertex contract would need to be addressed • Team Morale