

The CRAM Toolkit

**A framework and diagnostic questions for developing
and improving management control in IS projects and
systems**

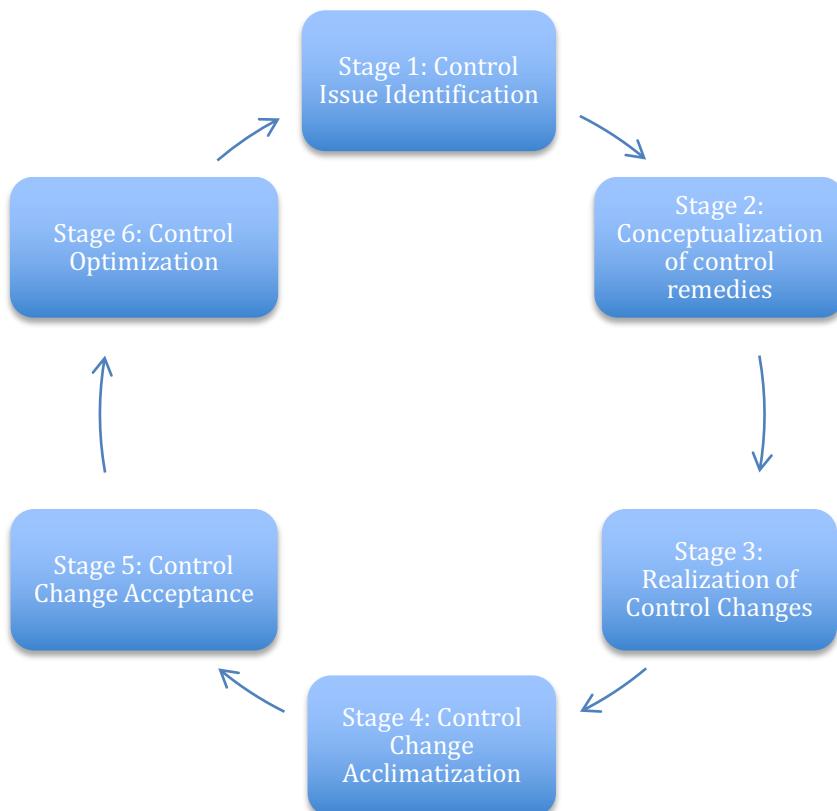
Introduction

This framework, known as the Control Revision and Adjustment Model (CRAM), shows the interconnected steps involved in changing IS management controls. The model traces the events that take place within an IS process from the point that a control issue is identified through to the optimization of controls.

All IS processes are not expected to move fully from stage 1 to stage 6. Although the model assumes sequential progress through the stages (stages cannot be skipped), events may occur that obstruct the ongoing control activities and result in a process being halted at a particular stage. Likewise, a significant IS process and control event, such as a complete rejection by staff of proposed control changes, could return an IS process from an advanced stage back to an earlier stage of the model.

Using these tools, practitioners should be able to rapidly identify if an obstruction has occurred that is preventing progress to a subsequent stage and plan an alternative approach. Managers can use the accompanying diagnostic questions to evaluate the current stage that an IS process is operating in and gauge recommended next steps.

The model was developed by Alec Cram (Bentley University) with Kathryn Brohman and Brent Gallupe (Smith School of Business).



STAGE DESCRIPTION	CHARACTERISTIC INDICATORS	DRIVERS TO MOVE TO NEXT STAGE
Stage 1 Control issue Identification	IS controls are perceived to not be working as intended by IS managers and staff	Managers and staff initiate the design of potential solutions to the identified control issues (move to Stage 2)
Stage 2 Conceptualization of control remedies	Detailed planning of control changes is conducted, including identifying absent or improperly operating controls	New or modified controls are implemented within an IS process in response to the identified issues (move to Stage 3)
Stage 3 Realisation of control changes	Initial familiarisation period for IS management and staff following the implementation of new or modified controls. Reactions may range from positive (e.g. enthusiasm) to negative (e.g. resistance)	Following the initial reactions to the altered IS controls, additional adjustments and adaptations are initiated (move to Stage 4)
Stage 4 Control change acclimatisation	A period of control refinement and acclimatisation (e.g. updates to a new IS policy), following the initial changes	Management and staff reactions to the controls stabilize and begin to establish an overall positive perception (move to Stage 5)
Stage 5 Control change acceptance	Widespread acceptance of new or modified controls by managers and staff, evidenced by little ongoing change to IS process controls	Consolidation of similar, overlapping controls to improve efficiency (move to Stage 6)
Stage 6 Control optimization	Highly efficient IS controls that consistently achieve IS process objectives	N/A

STAGE DESCRIPTION	PRACTITIONER ADVICE
Stage 1 Control issue Identification	Where changes are made to IS processes, practitioners should be diligent in monitoring any issues that might require control mechanism changes. Formal processes to facilitate the identification and communication of such issues can minimize delays so action can be taken quickly.
Stage 2 Conceptualization of control remedies	In many cases, a variety of possible options are available in conceptualizing a new or refined control mechanism. Practitioners should consider drawing on standardized frameworks (e.g. COBIT) and subject matter experts (e.g. IS auditors), as well as consulting with staff, when designing controls to ensure they adequately address the identified issues.
Stage 3 Realisation of control changes	Manager-staff communication is key during the implementation of new controls in order to minimize employee resistance.
Stage 4 Control change acclimatisation	Following the implementation of new controls, staff feedback should be actively sought by managers to identify opportunities for control refinements. Where controls are rigidly mandated, employees may be more likely to resist the changes and seek alternative workarounds.
Stage 5 Control change acceptance	Broad acceptance of control changes can take time in many organizations and requires diligence from leadership to elicit and act on continuing feedback from managers and staff in order to fully embed the controls within the operating practices of the organization.
Stage 6 Control optimization	Already operating highly effectively, controls within Stage 6 processes are evaluated by practitioners for opportunities to increase efficiency. This exercise may leverage control commonalities across multiple processes or opportunities for increased control automation.

CRAM DIAGNOSTIC QUESTIONS

Stage 1 questions:

1. Have there been any significant IS process or organizational changes recently (e.g. leadership change, regulatory change, new product or service introduction)?
2. Have management or staff highlighted concerns about how effectively a particular IS process is running (e.g. speed, quality and cost)?
3. *Progress indicator:* Have management or staff begun considering how IS controls might be altered to better suit the IS process?

Stage 2 questions:

1. Are plans and discussions underway that consider options to fix the current IS control deficiencies?
2. Are alternative options for new or modified controls being evaluated for the IS process?
3. *Progress indicator:* Have new or modified IS controls been implemented in the IS process as a response to the identified deficiency?

Stage 3 questions:

1. Are managers and staff aware of the new or modified controls?
2. Have managers and staff begun to provide feedback and form opinions on the new or modified controls?
3. *Progress indicator:* Have any adaptations and adjustments to the updated IS controls been made based on feedback by managers and/or staff?

Stage 4 questions:

1. Have the managers and staff improved their opinions of the controls as a result of the adaptations and adjustments?
2. Have the control adjustments and refinements impacted how managers and staff perceive the effectiveness of the IS process?
3. *Progress indicator:* Would management and staff generally agree that the new controls are operating effectively within the IS process?

Stage 5 questions:

1. Have IS controls reached a ‘steady state’ due to the IS process being perceived as working effectively?
2. Is there evidence that any employees or staff have concerns about the IS process or its controls?
3. *Progress indicator:* Have any control rationalization exercises been undertaken, such as the consolidation or refinement of IS controls across multiple IS processes, in order to improve the overall efficiency of controls used across the organization?

Stage 6 questions:

1. Do you perceive IS controls in the organization to be at an industry-leading level?
2. Do discussions of IS controls go beyond focusing on a specific IS process to more broadly consider the holistic integration of controls across processes?
3. Has the organization taken steps to improve the overall, inter-process efficiency and complementarity of controls?