ACHIEVING SUCCESS IN RESPONSIBILITY CENTER MANAGEMENT: AN ANALYSIS OF STAKEHOLDER PERCEPTIONS OF THE IMPLEMENTATION OF RESPONSIBILITY CENTER MANAGEMENT AT PUBLIC RESEARCH UNIVERSITIES

A Dissertation

Presented to

The Faculty of the Curry School of Education

University of Virginia

By

Katherine E. Walker, B.A., M.T.

December 2018

ABSTRACT

Institutions of higher education have increasingly been adopting responsibility center management (RCM), an incentive-based budgeting system, in order to help drive innovation and improve financial stewardship. RCM decentralizes responsibility and authority within institutions, thus allowing schools, colleges, and other units to make financial and academic decisions based on their priorities and knowledge of their activities. Higher education institutions are complex organizations, which makes adoption of RCM challenging; institutions can falter in their implementations, decide to return to their pre-RCM state, or adopt modified RCM models. Given the wide range of RCM and RCM-like models in use in higher education institutions, this study aimed to discover how employees within adopting institutions view their RCM models, with specific focus on whether those employees believed institutions successfully adopted RCM and its practices. This study explored how administrators within institutions that recently adopted RCM models viewed the results of the adoption, thus helping to answer the question of whether RCM created the change intended. Employees, including presidents, provosts, deans, budget directors, financial analysts, and faculty, from seven public, R1 institutions that implemented RCM in fiscal years 2011 or later were invited to respond to a survey consisting of closed- and open-ended questions about RCM practices at their institutions and questions relating to implementation success. The research questions for this dissertation were:

1. To what degree do institutions that adopt RCM successfully implement its practices?

   a. To what degree do adopting institutions attribute both direct and indirect costs to their constituent units?
   b. To what degree do adopting institutions attribute direct revenues to their constituent units?
   c. To what degree do adopting institutions decentralize responsibility?
   d. To what degree do adopting institutions maintain worthwhile incentives in their RCM models?

2. To what degree do institutions that adopt RCM achieve success in their implementations?
   a. To what degree do adopting institutions achieve shared understanding of roles and responsibilities among central administrators and responsibility center leaders?
   b. To what degree do adopting institutions have clear and widely shared implementation plans?
   c. To what degree do adopting institutions pay attention to their personnel, technical, and financial resources during and after implementation?
   d. To what degree do adopting institutions exhibit evidence of continuous improvement of their RCM models?
   e. To what degree do adopting institutions exhibit evidence of innovation and entrepreneurialism?

Of the 669 employees invited to the study, 141 submitted the survey (21%). Participants within and among the represented institutions responded differently to the survey questions, indicating that the value and effects of RCM depended on individual

perspectives. Participants cited positive and negative features of RCM in line with the literature, though more strongly emphasized the negatives, and provided sound advice for future implementers, based on their experiences at their institutions. Findings from this study will help inform institutions looking to adopt RCM in the future, as leaders consider the potential consequences, both positive and negative, of embarking on an implementation.

Department of Leadership, Foundations, and Policy
Curry School of Education
University of Virginia
Charlottesville, Virginia

APPROVAL OF THE DISSERTATION

This dissertation, "Achieving success in responsibility center management: An analysis of stakeholder perceptions of the implementation of responsibility center management at public research universities," has been approved by the Graduate Faculty of the Curry School of Education in partial fulfillment of the requirements for the degree Doctor of Philosophy.

_____
Brian Pusser, PhD, Chair

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Catherine Brighton, PhD

_____
Patrick Meyer, PhD

_____
Christian Steinmetz, PhD

_____
Mark Hampton, PhD

_____Date

For Andrew, who supported me in every way as I pursued my doctorate. From encouraging me to wrangling James, he was there next to me from the start to the finish.

ACKNOWLEDGEMENTS

Completing a dissertation is not a solitary endeavor. I had many people help me along this road. These acknowledgments in no way cover all those who helped me toward completion, but they are a start. I will spend the rest of my life being thankful for everyone's efforts on my behalf.

Brian Pusser, my advisor and committee chair, was a reliable and supportive source of advice and intriguing discussion. Brian gave me the honest feedback I earnestly desired, and for that, I am thankful.

I remember running with Mark Hampton and discussing the possibility of enrolling in a doctoral program. He encouraged me to apply and eventually served on my committee, providing me advice and encouragement throughout the program.

Catherine Brighton, Patrick Meyer, and Christian Steinmetz served on my committee, but they did not start helping me when they accepted their roles on my committee; they were valued advisors throughout the program and I look forward to working with them after graduation.

Outside of my committee, I would like first to thank two of Curry's department chairs. Stephanie Van Hover, thank you for advising me well beyond what you might have expected when I matriculated into your master's program. Carol Tomlinson, thank you for truly listening; your advice in tough times was invaluable. Additionally, I would like to thank my closest colleague, Chris Peper, for his patience and sense of humor (and for allowing his daughter Hayden to babysit James when I needed extra dissertation time). To the rest of the Curry community, thank you for allowing me to work with you

to help Curry be the best it can be; we have faced challenges, but have worked together to overcome them.

Finally, I would like to thank the Boston Bound group and the Charlottesville running community writ large for providing a healthy escape from the seemingly never-ending coursework and dissertation. Running with you, whether down the Blue Ridge Parkway, around the Rivanna Trail, or simply around town, has been an absolute delight.

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CHAPTER I: INTRODUCTION

Background

John R. Curry (2002) wrote, “Universities are deeply decentralized, loosely coupled by nature. Don’t fight it; get used to it. Don’t lament departmental balkanization; find ways to use it” (p. 133). Responsibility center management (RCM) at institutions of higher education is intended to do just that. As a model for delegating financial decision-making authority and responsibility to units within an institution, RCM is intended to improve the efficiency and effectiveness of financial operations, and presumably the overall performance of the institution, by embracing decentralization as an asset. Essentially, RCM divides institutions into budgetary units, each of which is more responsible than it might be in a centralized model, for financial decision-making. Under RCM, each unit is responsible for its bottom-line, using a combination of direct (e.g. tuition and service fees) and indirect (e.g. state appropriations and unrestricted giving) revenues to fund its direct (e.g. personnel and other than personal services) and indirect (e.g. allocated costs of executive management of the institution, facilities, etc.) costs (Kosten, 2009).

RCM differs from incremental budget models, which typically feature centralized authority over all unrestricted revenue sources (Curry, Laws, & Strauss, 2013, p. 13). Meisinger and Dubeck (1984) wrote, “Incrementalism is as much a framework for analyzing organizational or political behavior as it is an empirical description of that reality” (p. 182). In essence, the authors stated that incremental budgeting allows institutions to give stability to their units while minimizing conflict and the need for complex analysis, as “the incremental or decremental changes in the base budget from

one budget cycle to another tend to be too small to have a major impact on historical spending patterns" (Meisinger & Dubeck, 1984, p. 182).

Strauss and Curry (2002) reviewed twenty-five years of RCM implementations and found evidence of many successes in the use of the model. Both prominent figures in the RCM movement, Strauss and Curry spent decades in high-level administrative positions in a variety of higher education institutions. The authors defined the premise of RCM as "the completion of the authority-responsibility circle within affinity groups of disciplines: giving the faculty of schools or departments specific, measurable incentives to exercise their considerable authority responsibly for the benefit of themselves, their students, their organizational units, and the institution as a whole" (pp. 1-2). Economist John Douglas Wilson further defined RCM as allowing "units to keep the revenue that they generate, out of which they must finance the cost of their operations and pay fees to finance certain 'public goods' such as the library" (Wilson, 2002, p. 25).

How complicated could the implementation of a RCM budget model be at an institution of higher education? Burke (2007) described the "fragmented university" following the "hallowed tradition" of decentralization and stated, "…great recommendations all too often fail at the final and most critical stage of implementation" (p. 6, 22). Leroy Dubeck, a professor of physics and longtime member of Temple University's Faculty Senate Budget Committee, listed many of the complex questions that institutions should address prior to implementation in his article warning of the potential issues associated with the use of RCM (Dubeck, 1997). In his list of questions, Dubeck included how institutions should distribute state appropriations, allocate indirect costs, set tuition rates, set admission requirements, govern distribution of space, work

with unions, and adapt to an ever-changing external environment, noting that these are not easy questions for institutions moving to an RCM model to resolve, as these issues may still need to be handled centrally, even in the decentralized environment of RCM. Dubeck (1997) concluded by stating, “At one institution considering adopting RCM, the only thing that one high level administrator could say was that he ‘understood all the questions’. Adequate answers, however were never provided” (p. 90).

At the University of Virginia, administrators contrasted the before (centralized, incremental budgeting) with the vision for the future (RCM) using graphics to show the differences for its component schools (Figures 1 and 2). Figure 1 highlights the lack of visibility that the administrators perceived schools to have had into their tuition revenues, indirect operating costs, and the costs of institutional financial aid granted to their students. Figure 2 shows the administrator’s vision for RCM at the University of Virginia, with a goal of full transparency for revenues and costs helping budgetary units achieve “complete strategic perspective.” This study focuses on institutions similar to the University of Virginia to see if the implementation of RCM or RCM-like models changed the way the institutions operate, to see if they achieved a vision similar to the vision of the University of Virginia, as shown in Figure 2.

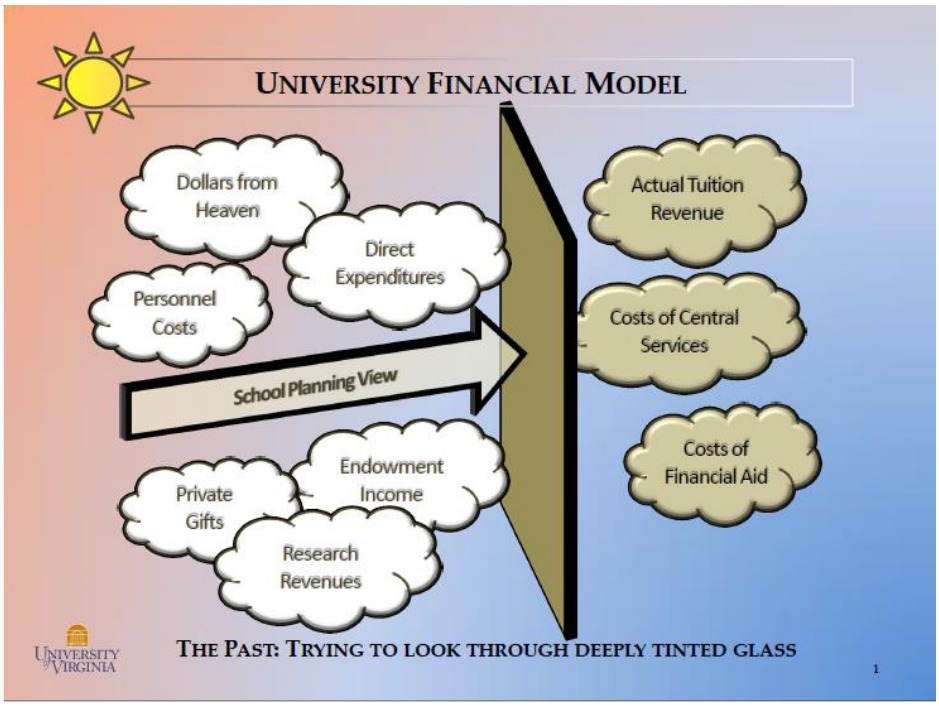

Figure 1. Before RCM at the University of Virginia. Reprinted from Update of Graphics of Core Concepts, In *University Financial Model Resources*, August 27, 2014, Retrieved April 9, 2017, from http://www.virginia.edu/resourcingthemission/documents/UFMCoreGraphics.pdf.

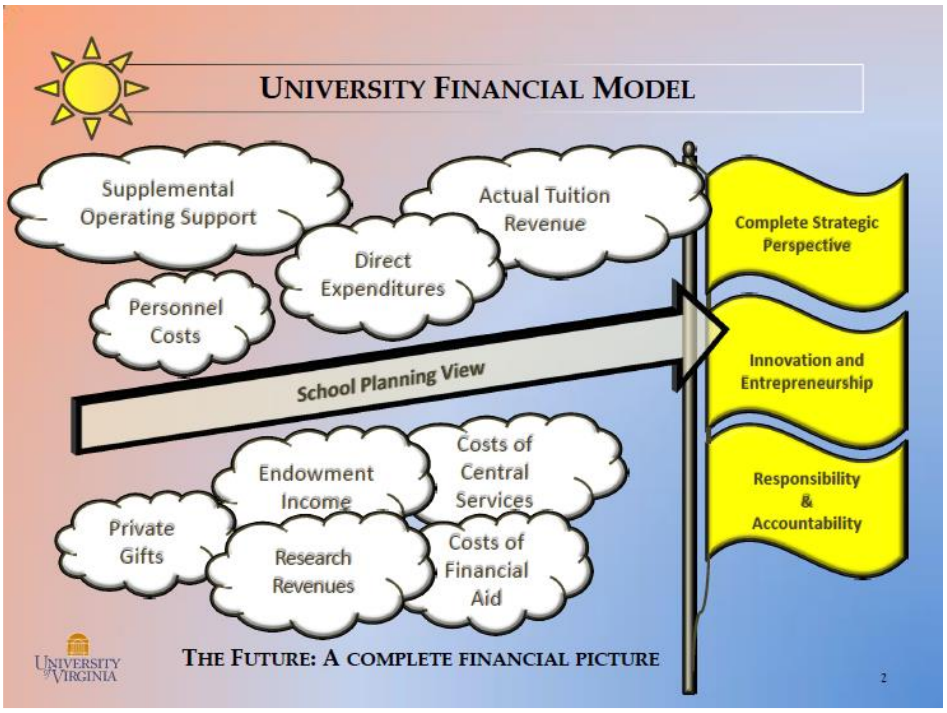

Figure 2. A Vision for RCM at the University of Virginia. Reprinted from Update of Graphics of Core Concepts, In *University Financial Model Resources,* August 27, 2014, Retrieved April 9, 2017, from http://www.virginia.edu/resourcingthemission/documents/UFMCoreGraphics.pdf.

Higher education institutions, pressured by changes in the external environment, have increasingly adopted RCM to replace their previous models of budgeting and financial management (Priest, St. John, & Tobin, 2002). RCM is a form of incentive-based budgeting. Its early forms emerged in 1970 and since then, the model has evolved and has recently begun to garner more interest from universities looking to find more efficient and effective ways to manage their tightening budgets and operate under the increased public scrutiny of recent years (Cekic, 2010). Curry, Laws, and Strauss (2013) prefaced the second edition of their seminal work on RCM by emphasizing the rapid increase in the rate of adoption of the model since their previous edition. They counted

fewer than one dozen RCM programs in 2002, but found that 14.2% of public universities self-reported operating under RCM by 2011. Even more universities reported interest in moving toward the model. A 2011 survey of college and university budget officers by *Inside Higher Ed* found that between fiscal years 2008 and 2011, there was a 14.9 percent increase in public doctoral institutions employing RCM models, with 21.3 percent of such institutions using RCM by fiscal year 2011 (Green, 2011, p. 17). Green (2011) attributed the movement away from incremental budget models to economic downturn. As state budgets tighten due to a strained economy, higher education is often one of the state agencies facing the largest budget cuts (Delaney and Doyle, 2011); RCM allows institutions more insight into the revenues and expenditures associated with their activities (Goldstein, 2005), thus many institutions turn to RCM in times of financial stress in order to make informed budgetary decisions. The 2016 edition of the survey found that 47 percent of chief business officers indicated their institution had changed budget models within the past four years, while 35 percent of those who indicated that their institution had not changed budget models stated that their institution plans to make such a change (Jaschik & Lederman, 2016). Twenty-one percent of chief business officers surveyed indicated that their institution employed RCM (Jaschik & Lederman, 2016).

This surging interest in RCM coincides with a period of tighter financial constraints for higher education institutions, as institutions have come to rely more heavily on competitively acquired revenues, such as tuition, state grants, philanthropy, and sponsored research (Whalen, 2002). The 2017 *Inside Higher Ed* survey of college and university business officers found that 71 percent of chief business officers surveyed

believed that media reports of a financial crisis in higher education are accurate, up from 63 percent in 2016 and 56 percent in 2015 (Jaschik & Lederman, 2017). Many institutions have had to adapt to changes in the external environment by providing new programs and increased access, while at the same time working to keep costs in line. Additionally, public institutions have seen the proportions of their budgets funded by state appropriations fall, in some cases to levels so low that some institutional leaders have discussed changing the language of "state-supported" institutions to "state-assisted" or even "state-located" (Indiana University Bloomington Faculty Council, 1994). Adams, Robichaux, and Guarino (2010) believed that this decline in state funding over time led public institutions to operate more like their private peers, which did not receive direct state support. In their surveys of private and public university chief financial officers (CFOs), Adams, Robichaux, and Guarino (2010) found that public university CFOs reported adopting managerial accounting practices at a faster rate than their private peers in 2003-2004, the opposite of the finding in their 1998-1999 survey. Additionally, the authors found that 37 percent of public institution CFOs cited declining state support as one of the most important issues in higher education finance in 2003-2004, up from 12 percent in their 1998-1999 survey (Adams, Robichaux, & Guarino, 2010, p. 8). Kirp (2003) described how parts of public universities could mimic private peers, even as the rest of the university slowly makes the move toward privatization, citing the Darden School of Business at the University of Virginia as his primary example (p. 131). Slaughter and Rhoades (2004) wrote that the blurred lines between public and private institutions, especially with the shift to academic capitalism, necessitated new labels for institutions currently called "public" and "private," because although private institutions

were beneficiaries of public subsidies (e.g. federal student aid), only recently have public institutions taken on "commercial functions" (p. 232).

Although increasing competition for revenues and increasing costs can spur institutions toward RCM, institutions do not have to be experiencing or anticipating financial troubles to have a reason to implement a new budget management model. At the University of Virginia, then President Teresa Sullivan made the implementation of a new budget model one of her top priorities (Sullivan, 2015). Sullivan was formerly the provost and executive vice president for academic affairs at the University of Michigan, which implemented a form of RCM in fiscal year 1999 (Courant, Hanlon, Knepp, & Schweitzer, 2008). She brought both expertise with RCM and the desire to implement it to the University of Virginia (Rector & Visitors of the University of Virginia, 2015). The University of Virginia did not highlight financial troubles as the primary reason to move to RCM; instead, its leaders highlighted the desire to move to a model that would allow the institution to adapt to the changing conditions in the environment. Specifically, institutional leaders felt that the existing, incremental budget model was

> historically based rather than aligned with current activity; [did] not include incentives for innovation, creativity, and revenue generation; [did] not consider all available funds; [did] not link resources and uses or consistently allocate revenue and expenses; [did] not appropriately engage academic and financial leaders in collaborative and strategic application of resources toward shared goals; [was] not as transparent as it should [have been]; and [did] not enable multi-year financial planning (Rector & Visitors of the University of Virginia, 2014b).

Taken together, the current circumstances facing higher education, especially financial concerns, have led many institutions to seek new ways to account for their revenues and expenditures (Gayle, Tewarie, & White, 2003). As a model that focuses on decentralizing information, accountability, and responsibility in institutions, RCM is seen by many institutional leaders as a way to improve stewardship of their resources. For example, in the 2017 *Inside Higher Ed* survey of college and university business officers, 64 percent of chief business officers agreed or strongly agreed that new spending at their institutions would come from reallocated dollars rather than new revenues, up from 57 percent in 2016 (Jaschik & Lederman, 2017; Jaschik & Lederman, 2016). By moving fiscal responsibility further down into the institution, RCM has the potential to improve effectiveness in financial and programmatic decisions and could lead to better communication between departments and central offices. Under RCM, those with the closest knowledge of the activity could contribute knowledge that people positioned higher in the institutional hierarchy and thus further removed from the activity may not have.

Problem Statement

RCM is not for all institutions. In order for institutions to see improvements in their financial management through decentralization, they must be sufficiently large to justify decentralization over centralized management of their budgets (Whalen, 2002). They must also be sufficiently prepared for the transition to a decentralized model (Whalen, 2002). That preparation comes in many forms: institutions must be staffed appropriately not just in central offices but also in the units to which they will devolve accountability and responsibility. This could entail significant training costs or even an

increase in staffing levels. Institutions must have sufficient technological supports for the transition to RCM by ensuring that their financial systems are robust and reliable enough for the more detailed reporting requirements. Institutions must also ensure that the policies and processes accompanying the new model are understood and agreed upon (Priest, Becker, Hossler, & St. John, 2002). Ideally, adjustments in positions, processes and systems should be planned, if not implemented, before a full conversion to RCM. However, organizational complexities and fiscal and other practical constraints may prevent ideal preparation for the implementation of RCM. Institutions should seek buy-in from relevant stakeholders, such as faculty and staff, to ensure that employees who will need to live within the new model will not actively fight against it. Kirp (2003) detailed the struggles faced in the implementation and post-implementation phases by the University of Southern California and the University of Michigan, which caused both institutions to significantly alter, and even rename, their new budget models. At USC, the decision by the provost to allow professional schools to offer general education courses led to a boon for professional schools but decimated the faculty ranks in the liberal arts. After several years, a new provost reversed this decision, instantly changing the financial pictures of USC's constituent colleges and schools (Kirp, 2003). Such abrupt and large changes could have potentially been avoided through early engagement of key stakeholders, to ensure that the RCM model being implemented would meet the needs of the institution.

Institutions that choose to implement RCM face challenges associated with the planning and implementation of the model. There are known drawbacks to implementing RCM (Leslie, Oaxaca, & Rhoades, 2002); however, the institutions that make the

decision to implement ultimately feel that the potential benefits will outweigh any potential negative consequences. Although difficult to achieve, a successful RCM implementation for institutions involves achievement of four significant goals: 1) achieving a shared understanding among central administrators and responsibility center leaders, 2) having a clear implementation plan, 3) paying careful attention to resources, and 4) showing continuous improvement. As described in Figure 3, RCM, when implemented well, involves widespread efforts working toward common goals. Institutions that achieve all four goals in Figure 3 are more likely to have effectively navigated the transition process (Bray, 2012), while those that have not achieved one or more areas likely encountered issues during their implementations and, depending on the time since implementation, could still be working to resolve those issues years after their full implementation dates, like the University of Southern California (Kirp, 2003).

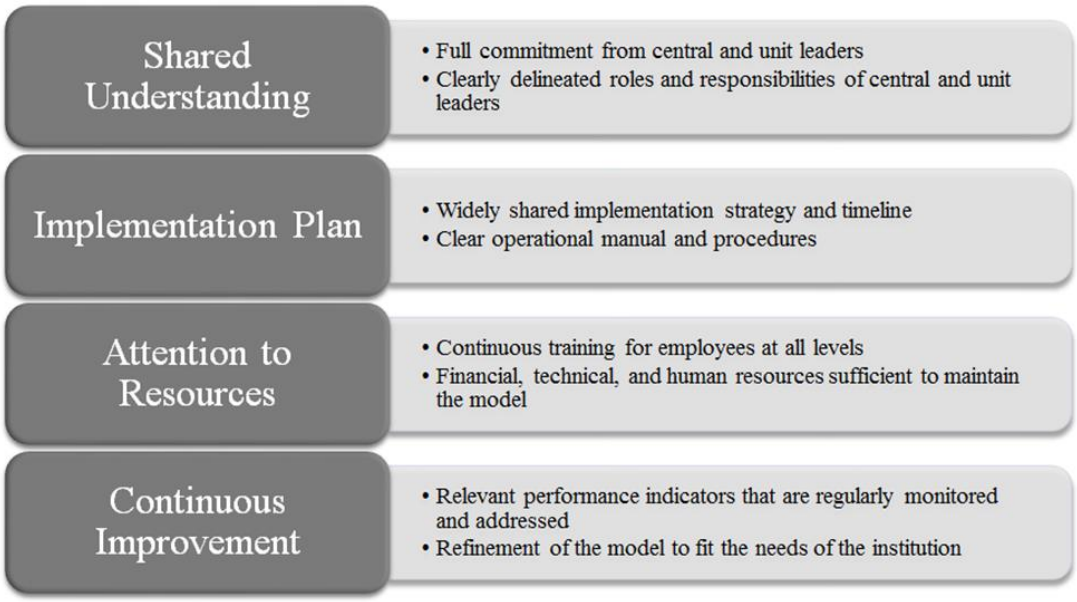

Figure 3. Characteristics of successful RCM implementations. Adapted from Bray, 2012, p. 217. Bray used a comparative education lens to study centralization and decentralization in educational systems.

Continuous improvement of the model is essential to its success, as institutions need to ensure that the model meets the needs of the institution and is able to adapt as the institution evolves. For example, at the University of Michigan, the original RCM methodology attributed both undergraduate and graduate tuition to the units based solely on the program in which the students were enrolled, not where they took their courses. Leaders at UM set this up with the intention of decreasing the incentive for units to create duplicative course offerings in order to retain their students for a higher proportion of the instruction (e.g. an engineering school offering writing courses). The University of Michigan implemented its original version of RCM in fiscal year 1999 and changed its tuition attribution formula for undergraduate students to split tuition attribution between the unit of enrollment (75%) and the unit of instruction (25%) in fiscal year 2003. In fiscal year 2009, the University further refined this undergraduate tuition attribution formula to an even split between the unit of instruction and the unit of enrollment and changed the graduate attribution formula away from 100% to the unit of enrollment to 75% to the unit of enrollment and 25% to the unit of instruction. The leaders of the University of Michigan wrote that "this change [was] implemented to more closely link the revenue to the cost of providing instruction as well as to provide greater incentives for schools and colleges to offer courses that will benefit students from other schools and colleges" (Courant, Hanlon, Knepp, & Schweitzer, 2008, p. 10). Essentially, the University of Michigan was mindful of the needs of its constituent units and adjusted its model methodology post-implementation to ensure that it continued to serve the University well.

Research Questions

Given the complexity of higher education organizations, this study sought to discover whether institutions that begin the RCM transition process exhibited the practices of RCM upon full implementation, and thus successfully implemented the model. The results informed the researcher's discussion of the extent to which RCM resulted in wide-scale change at implementing institutions. The increase in popularity of the model makes this research all the more important, as the external pressures on higher education institutions make it more vital for them to focus their efforts on changes that will make a difference; if RCM in implementing institutions more closely resembles a management fad, their precious resources may be squandered. The complexity of higher education institutions, especially those more likely to adopt RCM, means that a multitude of individuals, at many levels and in many units within the institutions, should be familiar with the effects of RCM; these voices helped the researcher assess the impact of RCM on their institutions. As stated by Whalen (2002), "Under responsibility center management, leadership is no longer confined to the top echelon of university administration…[RCM] provides avenues for communicating a vision for change both up and down the organization and for empowering those who will carry it out" (p. 22). Lang (1999b) wrote that RCM "presumes that the capability to make some decisions is greater lower in the organizational structure" (p. 7). Specifically, in addition to including the highest-level leaders of institutions, this study included the voices of unit leaders within institutions, including operational managers, because of their importance to successful operation under RCM. The knowledge of those middle- and upper-management leaders of units within institutions could inform higher-level leaders of institutions contemplating implementation of RCM in their decision process about making such a significant

change. This study collected a wide variety of voices and used a retrospective approach to examine whether RCM represented true change at implementing institutions by seeking to answer the following research questions.

1. To what degree do institutions that adopt RCM successfully implement its practices?
    a. To what degree do adopting institutions attribute both direct and indirect costs to their constituent units?
    b. To what degree do adopting institutions attribute direct revenues to their constituent units?
    c. To what degree do adopting institutions decentralize responsibility?
    d. To what degree do adopting institutions maintain worthwhile incentives in their RCM models?
2. To what degree do institutions that adopt RCM achieve success in their implementations?
    a. To what degree do adopting institutions achieve shared understanding of roles and responsibilities among central administrators and responsibility center leaders?
    b. To what degree do adopting institutions have clear and widely shared implementation plans?
    c. To what degree do adopting institutions pay attention to their personnel, technical, and financial resources during and after implementation?
    d. To what degree do adopting institutions exhibit evidence of continuous improvement of their RCM models?

e. To what degree do adopting institutions exhibit evidence of innovation and entrepreneurialism?

Organization of the Study

This dissertation is divided into five chapters and many subsections. The first chapter, of which this is a part, introduces the study and provides the conceptual framework. Chapter two, the literature review, provides an overview of the scholarly literature about competition and change in higher education. The literature review then focuses on RCM, including its benefits and criticisms. The third chapter illuminates the research questions, which ask whether RCM is successfully implemented at adopting institutions and represents a concrete change. The questions center on four key features of a successful implementation: shared understanding, an implementation plan, attention to resources, and continuous improvement (Bray, 2012). The third chapter details the methods used in the study to discover new knowledge about RCM adoption, using a mixed-methods approach to gather and analyze data from personnel associated with RCM institutions. Chapter four presents the results of the study, organized first by the type of result (i.e. quantitative or qualitative), and then by specific topics. Chapter five discusses the results in greater depth, provides interpretations and conclusions, and suggests avenues for further research. Broadly, this study sought to understand whether institutions successfully implement RCM in order to help provide potential future adopters with more information about the changes that result from an implementation, which could help them gauge whether moving down the path to implementation has more potential benefits than risks for their institutions.

Conceptual Framework

Instituting wide-scale change in higher education is not a simple task. The complexity of the organizations complicate the implementations of RCM at institutions, thus making the new models more likely to fail. This study examines the extent to which institutions that recently changed to RCM models were successful in their implementations. Using the works of organizational theorists Weick, Gravovetter, Cohen, Mark, Olsen, Bolman, Deal, and Birnbaum, this study proposes a framework to examine the extent to which institutions are likely to achieve success in their implementations of RCM. Using Birnbaum and others, this study describes why implementing RCM, and change in general, is difficult to accomplish.

The work of Weick and his colleagues highlighted the need for organizations undergoing a large change, such as the adoption of RCM, to understand the operations of both the parts and the whole of the organization in order to improve planning for implementation. As summarized by Bolman and Gallos (2011), "leaders often miss significant elements in decoding the situations and opportunities that they face…the risk is that they'll…focus on selected cues and fit what they see into a familiar pattern, even if it isn't quite right" (p. 23). Banta, Busby, Kahn, Black, and Johnson (2007) recognized this risk when conducting a survey of the needs of units within Indiana University-Purdue University Indianapolis. The authors, as the staff within the university's institutional research office, recognized that although the deans were the ones paying the "tax" to fund the institutional research office, the conclusions in the survey would not be complete without information from the wider set of users, namely associate deans, department chairs, and other faculty leaders. Similarly, the work of Granovetter highlighted the need to be mindful of "the strength of weak ties" (Granovetter, 1973; Granovetter, 2005),

which, when applied to organizational change, could increase the importance of engaging a variety of voices in the change process. Cohen, March, and Olsen (1972) theorized that universities operate using a garbage can decision process, wherein problems and solutions are jumbled together into a chaotic mix, because they operate like "organized anarchies": they have poorly defined preferences, technology and processes that are not well understood by their employees and other users, and their decision-makers devote varying amounts of time to the decision-making process (p. 1). Consequently, they wrote that "university decision making frequently does not resolve problems…problems are often solved, but rarely by the choice to which they are first attached" (Cohen, March, & Olsen, 1972, p. 11). Bolman and Deal (2013) posited that organizations can be viewed through four frames and that leaders hoping to institute change in their organizations need to be mindful of all four frames. Through five editions of their seminal text on organizations, they found, "in studying scores of innovations, we continue to see managers whose strategies are limited because their thinking is limited to one or two cognitive lenses," thus impeding their ability to implement change because "decision makers don't understand their circumstances well enough to anticipate the consequences of their actions" (p. 377). Taken together, the works of these theorists form the foundation of this study, allowing the researcher to study the effects of the implementation of RCM with the intent of discovering whether the implementations resulted in change for adopting institutions or whether the RCM acted more like a fad, even when "[appearing] to be in widespread use, its direct influence on educational processes is usually negated or moderated by institutional cultures and organizational processes" (Birnbaum, 1988, p. 12).

As shown in Figure 4 below, this study proposes a new model for the requirements for successful RCM implementation, positing that institutions must have strong and wise leadership; engage in implementation planning; have open, honest, and frequent communication; pay attention to resources, including personnel, technical, and financial resources; and emphasize continuous improvement in order to achieve the goals they set associated with the change to RCM. As the results of this study show, the institutions that failed to pay sufficient attention to one or more of these elements achieved less success in their implementation and have the potential to revert to old practices because of their poor implementations, which creates significant waste and turmoil. The discussion at the conclusion of this study highlights the various ways institutions could strive to achieve success in their implementations, based on the responses of participants experiencing RCM implementations in their own institutions.

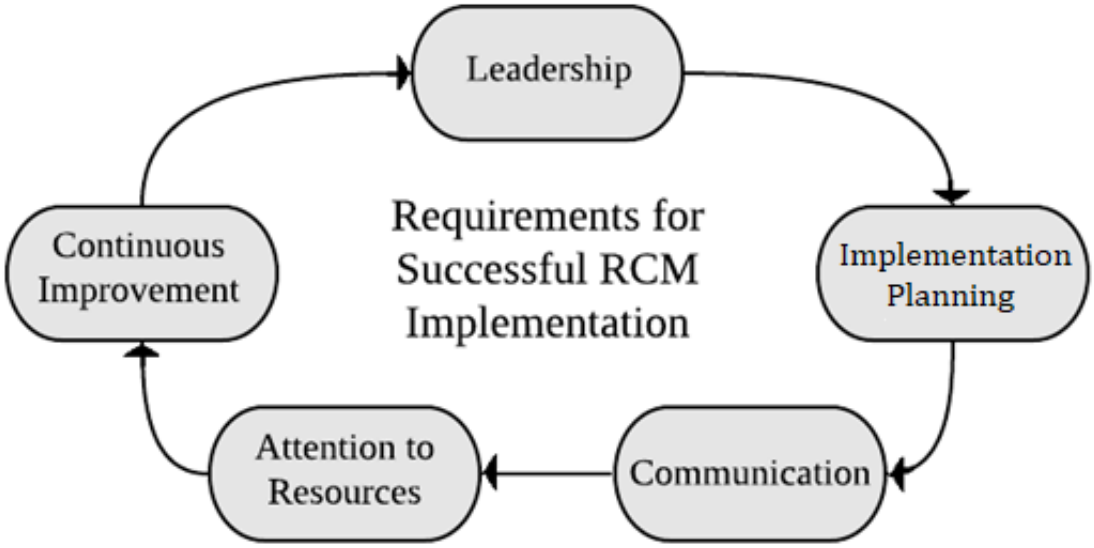

Figure 4. Successful RCM implementation requirements from the literature.

CHAPTER II: LITERATURE REVIEW

Competition in Higher Education

Porter (1980) defined an industry as "the group of firms producing products that are close substitutes for each other" (p. 5). Further, he outlined the "five competitive forces – entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers, and rivalry among current competitors" as "jointly determin[ing] the intensity of industry competition and profitability" (Porter, 1980, p. 6). Peterson (2007) applied Porter's definition of industry and competitive forces to higher education to identify distinct periods in the history of higher education after 1950 and the environmental conditions dominating each period. Most relevant to this study, Peterson (2007) identified the period of 1995 and beyond as "an era of transformation," wherein seven environmental conditions shaped the higher education industry, specifically, "the press for diversity, revolution in telematics, interest in academic quality, concern about economic productivity, search for new learning markets, expansion of globalization, and continued resource constraint" (pp. 165-166). These themes emerge as institutions move to RCM, as increased competition in the higher education industry leads institutions to consider new ways of managing their finances and decision making. For many institutions, these environmental conditions are listed as reasons for moving to RCM or RCM-like models (Rector & Visitors of the University of Virginia, 2014a; Temple University, 2013).

Postsecondary institutions compete for revenues from student tuition and the right to increase tuition, public funding from state legislatures, sponsored research, and gifts and endowments, among other sources. As such, the institutions constantly compete for students, faculty, donors, and especially for the top institutions, prestige (Kirp, 2003). This competition among colleges and universities has intensified over time, as increasing

costs have led the institutions to seek out new ways to fund commitments and thereby to meet their missions. Institutions have taken many approaches in trying to increase and/or stabilize their revenue bases, including the addition of new programs aimed directly at preparing graduates for post-graduate careers (the shift away from the liberal arts), the addition of online programs that allow institutions to significantly increase the rate of production without the burden of high capital costs, an increased emphasis on marketing to potential students, faculty, and donors, and increases in corporate sponsorships and partnerships. Many of these changes are driven by the market, as institutions strive to show the potential customer (students, faculty, donors, sponsors) that they are the best suppliers of the product in demand (e.g. postsecondary education provider, career-maker, producer of public goods, partner in the advancement of knowledge) (Kirp, 2003).

Winston (1999) highlighted the differences between higher education and other industries, even within the non-profit sector. Higher education institutions produce a product that relies on the input of the customer, thus capitalizing on peer effects. Somewhat unique to higher education – the majority of higher education institutions are at least somewhat selective in the customers whom they serve. The recognition that customer quality informs the quality of the product (postsecondary education) means that the higher the perceived or actual quality of the customer, the higher the perceived or actual quality of the product. This selectivity plays into another unique feature of higher education as compared to other industries: the prestige game. Kirp (2003) noted that

> Prestige means more than bragging rights for trustees and alumni. It brings tangible benefits, and small differences in reputation have large consequences. The more highly regarded the institution, the more top students and prized

> professors it attracts, and the more readily it can secure the biggest gifts, the largest research grants from government and foundations, and often the most lucrative industry contracts. Those successes reinforce a school's place in the pecking order. (Kirp, 2003, p. 4)

In an effort to produce the highest quality products, institutions of higher education, especially those highest ranked and considered most prestigious, must secure the highest quality inputs (e.g. faculty, students, facilities, etc.); increases in the quality of these inputs can increase the perceived or actual quality of the products, but such increases come at a significant cost to the institutions (Winston, 1999). This is of great concern for the institutions represented in this study, as they are all ranked institutions with high levels of research activity.

Change in Higher Education

Higher education institutions face pressures that sometimes conflict with each other, but drive the institution to make incremental or large-scale changes to their operations: internal pressures, resource pressures, legislative and constituent demands, and the pressure to be more like the most prestigious institutions. DiMaggio and Powell (1983) argued that this drive toward isomorphism was a cause of bureaucratization and led to inefficiencies in organizations, which could increase their costs without revenues to offset. DiMaggio and Powell (1991) identified three types of institutional isomorphism, coercive, mimetic, and normative, which could lead institutions to imitate their peers. In addition, institutions must cope with disruptions in higher education, such as the introduction of new technology, changes in legislation, and changes in the economy, which can force changes in how they operate. In addition to changes forced upon some

institutions by increasing competition for revenues such as tuition, sponsored research, and philanthropy and the decreasing proportion of budgets funded by state appropriations for public institutions, higher education faces the pressure to prove its value, as the public demands more accountability from institutions through added scrutiny by accrediting bodies, government, and individuals.

Bowen (2013) viewed the change forces as the pressure to increase productivity to combat "cost disease" and the trend of rising costs and the pressure to address concerns about the affordability of postsecondary education, especially for students in public institutions. Bowen (2013) described these pressures briefly and then focused on what he saw as a bigger force of change in the higher education market: the advent of widespread online learning; although he acknowledged the challenges of online education, he believed online education has the potential to address some of the pressures to decrease costs and improve affordability in higher education.

Kerr (2001) linked recent changes in higher education to the market-driven approach of many institutions, as they seek to attract students, faculty, and donors, and examined the potential future implications of the approach, writing that "institutions once oriented toward religious morality, or self-chosen intellectual interests, or class status, were now increasingly market-oriented – Karl Marx's 'cash nexus'" (p. 204). He included continued globalization, fluctuating productivity rates, changing returns to postsecondary education, continued proportional increases in the enrollment of "non-traditional" students, increased integration of technology, continued shifting away from the liberal arts to the science and technology realms, increased for-profit presence in the higher education market, and increased tension over the effective use of resources in

higher education (Kerr, 2001). The increased tension around the stewardship of resources, especially public resources, highlights the danger of the increasingly diverse funding sources used by institutions of postsecondary education. As the number of stakeholders increases, colleges and universities are forced to decide which stakeholders' demands take precedence over others, which can cause tension between trustees, faculty, and administrators as they try to decide how to prioritize activities for the institution.

The Shift to Academic Capitalism and Commercialization

While contending with market and other external forces, universities have also undergone a shift from an "academic public good knowledge regime" to an "academic capitalist knowledge regime" (Slaughter & Rhoades, 2003, p. 203). Slaughter and Rhoades (2003) defined the "academic public good knowledge regime" as one that "paid heed to academic freedom" and "assumed a relatively strong separation between public sector and private sector" (p. 203). Academic capitalism, on the other hand, "values knowledge privatization and profit taking" and suggests that the public does not have the first claim to new knowledge, even when that knowledge is generated at public universities (Slaughter & Rhoades, 2003, p. 203). Slaughter and Leslie (1997) linked academic capitalism with Pfeffer and Salancik's (1978) resource dependence theory and the organizational turbulence that could be caused by shifting resources. Specifically, Slaughter and Leslie (1997) believed that "these changes in revenue patterns promote academic capitalism because they push faculty and institutions into market and marketlike behaviors to compensate for loss of [state appropriations]" (p. 111). The mindset associated with the shift toward academic capitalism in higher education, one in which the university shifts toward privatization and profit seeking, fits with the

movement toward RCM. A management tool, RCM allows institutions to delegate responsibility and authority and spreads a clearer financial picture throughout the institution, thus allowing institutions to focus on maximizing revenues, especially in times of proportionally decreased state appropriations. RCM is a management tool that brings university management closer to the management seen in the for-profit business sector, which makes RCM further evidence of academic capitalism in higher education. Kosten (2009) discussed the debate about the suitability of business models for higher education, pointing out that academics have long fought the trend, but "regardless of this debate, the pressure to manage resources effectively due to fiscal challenges facing higher education has forced the adoption of business management tools" (p. 22).

Tuckman (1998) provided four conditions essential to successful commercialization by a nonprofit, including

1. The nonprofit must feel a need for additional revenues and perceive that the sale of its outputs will provide a viable means to realize its goals.
2. The nonprofit's governing board must decide that the pursuit of profits from the sale of outputs is consistent with, or at least does not substantially interfere with, the mission of the organization.
3. The nonprofit must have products suitable for sale in the marketplace.
4. Consumers must be willing to purchase the products offered by the nonprofit. (p. 36)

Higher education institutions meeting these criteria would find RCM a useful tool to help them achieve their aims; however, RCM itself would not ensure the success or failure of their pursuits. As described previously, institutions face scrutiny from the public over

institutional finances and the extent to which they produce public goods, especially since they receive public funds. RCM encourages innovation and entrepreneurial activities, but criticisms of the model, to be described later in this paper, include the commercialization of the university and the continued erosion of the focus on producing public goods. Another frequent criticism of RCM is that it causes institutions to have an increased focus on revenues and profit making, although Tuckman (1998) and others have shown that this shift is occurring in higher education and other nonprofit sectors regardless of whether organizations have adopted RCM or similar models.

Complexity in Higher Education

Complicating wide-scale change at institutions of higher education are their own innate complexities, in addition to their interactions with their external environments. Faced with a wide variety of demands from their stakeholders, institutions have allowed mission drift (Kirp, 2003). Even without such drift, research institutions, such as those in this study, have tripartite missions comprised of teaching, research, and service (although some with academic medical centers have a fourth mission of healthcare). Clark (1987) illustrated this complexity problem, writing, “Thus, in whatever direction we turn, we confront complexity. If we take research, teaching, and public service as broadly-stated missions of higher education, each becomes over time an elaborate, steadily differentiating set of expectations and tasks” (p. 5). The multifaceted nature of the modern university makes it more difficult for institutional leaders to implement change.

Higher Education Organizations as Loosely Coupled Systems

Karl Weick’s theory examines how organizations use information to maintain or change their operations. Weick (1976) described the key features of loosely coupled

educational organizations, which fit well with higher education. Given Weick's focus on the nature of change processes in organizations, this study frames the change processes associated with the implementation of RCM within the model of loosely coupled organizations. It also turns attention to the disruptions associated with episodic change as well as the need for sensemaking and interpretation processes, which are essential to the achievement of positive outcomes.

Karl Weick, a leader in the field of organizational theory, popularized the notion of loosely coupled systems, or systems that are interdependent, but with weak or infrequent connections (Orton & Weick, 1990). Weick emphasized the importance of the autonomy of the individuals and subunits within organizations as a factor in localized adaptations that help portions of the organization to adapt to changes in the internal and external environment. Weick's work also focused on sensemaking and interpretation processes within organizations, as he examined how organizations utilize information from the internal and external environments to guide decision-making. Daft and Weick (1984) posited that those processes, when occurring closer to the relevant activity, provided better information than when sensemaking and interpretation occurred only at the highest levels of the organization.

Orton and Weick (1990) put forth a simple definition of an organization as "a source of order which consolidates, unifies, or coalesces diverse elements or fragments and elements or fragments, which are consolidated, unified, or coalesced by a source of order" (p. 216). The authors cautioned researchers about overstating the importance of either the order or the elements, as the order and the elements worked in tandem in organizations. Jepperson and Meyer (1991) theorized that formal organizations occur as a

"sort of manic outburst of rationality created under considerable competitive urgency and, for the same reason, unlikely to work as chartered" (p. 209). Higher education institutions thus function as organizations, their very structures constantly testing the balance between the importance of the source of order and the roles of its diverse elements, while at the same time facing competitive pressures. Lutz (1982) wrote, "Organizational researchers and practicing administrators in institutions of higher education have accepted loose coupling…as [an] accurate description of universities and colleges" (p. 653). Curry (2002), a practicing administrator and prominent proponent of RCM, connected Weick's loosely coupled systems concept to higher education, stating, "Karl Weick (1979) uses the phrase 'loosely coupled worlds' to describe organizations like ours: loose confederations of academic departments loosely coupled with each other and with central administrative units" (p. 132).

Weick (1976) described educational organizations as loosely coupled systems, or "things that may be tied together either weakly or infrequently or slowly or with minimal interdependence…across time" (p. 5). Orton and Weick (1990) clarified this definition in their reconceptualization, as they wrote, "loose coupling suggests that any location in an organization (top, middle, or bottom) contains interdependent elements that vary in the number and strength of their interdependencies" (p. 204). The authors clarified that loose coupling exists between two sides of a wide spectrum describing systems and organizations; on one end, strong bonds that produce stability make a system tightly coupled, but inflexible, and on the other, indeterminate relationships lead to flexibility, but indicate a decoupled system. To put it simply: "if there is both distinctiveness and responsiveness, the system is loosely coupled" (Orton & Weick, 1990, p. 205). The

responsiveness of the units within a system makes them coupled; however, the distinctiveness of the units makes the relationships within the system loose.

Although Weick did not focus on particular types of education organizations (Weick, 1976), his description of loosely coupled systems has been applied to postsecondary institutions (Boyce, 2003; Cameron & Whetton, 1983; Cannon & Lonsdale, 1987; Deem, 1998). Others, such as Lutz (1982) argued that universities do not represent wholly loosely coupled systems, but rather an aggregation of decisions that are either tightly coupled, loosely coupled, or uncoupled. Higher education institutions are also complex organizations with subunits and hierarchies that have varying degrees of interdependence and interaction.

Orton and Weick (1990) identified the eight most frequently occurring types of loose coupling as happening "among individuals, among subunits, among organizations, between hierarchical levels, between organizations and their environments, among ideas, between activities, and between intentions and actions" (p. 208). In RCM institutions, some of these types of loose coupling could be especially prominent, depending on how well defined the RCM model was during the planning and implementation stages. For example, a university that chose to institute governance that required the deans of each school meet regularly to discuss the RCM model, agree upon the distribution of resources not earned directly by the schools, and approve institution-wide policies could have stronger, although still loose, coupling among schools than an institution in which the schools' leaders did not interact, as there would be more interaction among individuals (the deans) and the subunits represented by the deans. In both cases, localized adaptation could occur, but in the former, there likely would be more standardization and

understanding of the institution as a whole within its subunits, as allowed by the more frequent interactions and communications among individuals and their subunits.

Strength of Weak Ties

Granovetter's (1973) "strength of weak ties" theorized that the weak ties transmit novel information within social systems better than strong ties, as the people with whom a person has strong ties are more likely to have a greater overlap in their knowledge. People with whom a person has weak ties are likely to have less of an overlap in knowledge, thus interactions between those with weak ties are more likely to transmit novel information. Granovetter (2005) focused on weak ties in social networks, writing that they "are much more likely than strong ones to play the role of transmitting unique and nonredundant information across otherwise largely disconnected segments of social networks" (p. 35). Weak ties can also provide a better mechanism for diffusing information in a network, as "whatever is to be diffused can reach a larger number of people, and traverse greater social distance, when passed through weak ties rather than strong" (Granovetter, 1973, p. 1366). Applied to a complex organization like an institution of higher education undergoing the transition to RCM, this means that a wide array of people with weak ties may possess differing knowledge about the change to RCM and thus the inclusion of people at varying levels of the organizational structure is essential to ensure that a study paints a more complete picture of RCM.

Models of Institutional Functioning

Birnbaum (1988) illustrated four models of institutional functioning through examples of the idealized institution under each model. His collegial institution was one with "an emphasis on consensus, shared power, common commitments and aspirations,

and leadership that emphasize[d] consultation and collective responsibilities" (Birnbaum, 1988, p. 86). Its actors were equal participants in the process, and hierarchy was not fundamental to the organization's functioning. To the extent that hierarchy existed, as in the case of the president of a university, he/she was viewed as "first among equals"; instead of being seen as an appointed leader, he/she was seen as elected by the faculty (p. 89). The collegial institution functioned through consensus of its members, which can help participants feel more involved and part of the community, but can also slow the decision process, as consensus requires ample time for deliberation (p. 88). Birnbaum (1988) provided seven rules that leaders of collegial institutions should follow, "if they wish[ed] to retain their effectiveness" (p. 102). According to Birnbaum (1988), a leader of a collegial institution should exemplify the values of the group and should avoid deviating from the norms too often. He/she should live up to the leadership standards expected by the group, use established channels of communication, listen to the group, reduce status differences among members, and encourage members to have self-control (p. 101-103). Perhaps most importantly, a collegial leader should avoid giving orders that will not be obeyed, as that can lead to a questioning of his/her leadership position.

Birnbaum (1988) stated that bureaucracies formed when institutions became larger and more complex, as more positions formed between the top and the bottom of the hierarchy. Although collegiality could exist in such institutions, it most likely existed at the departmental level, if it all. In a bureaucratic institution, a greater divide existed between administrators and faculty, and the institution was governed by rules and regulations often put in place by specialized administrators. While the idea of bureaucracy could bring forth images of wasteful practices, the construct was meant to

bring standardization to large organizations and thus promote efficiency and effectiveness (p. 106-107). Relying on organizational charts, job descriptions, and set policies, the bureaucratic institution sought to increase predictability. Rationality was implicit in the bureaucratic institution, as "there [was] some conscious attempt to link means to ends, resources to objectives, and intentions to activities" (p. 113). Leaders in bureaucratic institutions, according to Birnbaum, either needed to be charismatic enough to lead the group with personal authority, or needed to gain legitimate authority through buy-in among the group members.

Birnbaum's (1988) idealized political institution was one in which the conflicting groups were grouped around the generational divide. A political institution was one that consisted of a large number of individuals and groups that in some ways operated autonomously but in other ways remained interdependent. Without interdependence, there could be no politics, and no power. Only when individuals had to rely on others for some of their necessary resources did they became concerned about or interested in the activities or behaviors of others (Birnbaum, 1988, p. 132). As such, a political institution was one in which individuals' self-interests could come into conflict with each other, and sometimes with group norms.

The organized anarchy described by Birnbaum (1988) was one in which "resources [were] allocated by whatever process emerge[d] but without explicit accommodation and without explicit reference to some superordinate goals. The 'decisions' of the system [were] a consequence produced by the system but intended by no one and decisively controlled by no one" (p. 153). The anarchical institution was characterized by problematic goals, unclear technology, and fluid participation; decision-

making by leadership was characterized by resolution, flight, or oversight (p. 155-156, 164). Birnbaum linked the organized anarchy to flagship and other multi-faceted universities because he questioned what an institution would look like if a person were to "question common understandings of organizational rationality that presuppose that thinking precedes action, action serves a purpose, purposes are related to consistent sets of goals, and choice is based on logical relationships between actions and consequences" (Birnbaum, 1988, p. 154).

Decision Processes

In organized anarchies like higher education institutions, decision processes may not occur as fluidly as might be ideal. Cohen, March, and Olsen (1972) presented the garbage can model of organizational choice, which contends that decision-making processes in large organizations occurs akin to the way garbage is processed, in that the combination of problems, solutions, and participants become muddled together such that any one (or more) of the three may be extracted from the metaphorical garbage can without being connected to the other related elements. In effect, "the garbage can process is one in which problems, solutions, and participants move from one choice opportunity to another in such a way that the nature of the choice, the time it takes, and the problems it solves all depend on a relatively complicated intermeshing of elements" (Cohen, March, & Olsen, 1972, p. 16). This decision process is not ideal for institutions, but occurs because colleges and universities often function as organized anarchies, "plagued with goal ambiguity and conflict, with poorly understood problems that wander in and out of the system, with a variable environment, and with decision makers who may have other things on their minds" (Cohen, March, & Olsen, 1972, p. 16). The garbage can

model of organizational choice is crucial to the understanding of the implementation of RCM. As institutions undergo the decision process, this model shows that the factors they may consider may not solve the problems they intend to be solved. In effect, the garbage can model, as applied to RCM, could mean that the goals institutions set at the outset of their RCM process may not be achieved.

Decentralization and Localized Adaptation

The diversity of units and functions within a large university could lead to different modes of operation across units. This localized adaptation, according to Weick (1976) was a function of loosely coupled systems that allowed units within educational organizations to adapt to changing circumstances without necessarily affecting the whole of the organization. While this could be helpful for small-scale changes within an organization, localized adaptation could be a roadblock to large-scale change within an organization, as standardization of processes across units could be more difficult. At the same time, the roadblocks to wide-scale change associated with localized adaptation have allowed higher education institutions to bypass many management fads, which, had they been implemented, could have substantially changed higher education, for the better or the worse (Birnbaum, 2000).

More specifically, and relevant to this study, Weick (1976) tied the occurrence of loosely coupled systems to decentralization and "delegation of discretion" (p. 5). Thus, the more decentralized an institution becomes, the more it resembles a loosely coupled system. Burke (2007) advocated for "coupling decentralization with direction" because doing so "preserves the best and avoids the worst of bottom-up and top-down decision making. This coupling should be loose enough to encourage department and faculty

creativity yet tight enough to ensure institutional priorities and performance" (p. 11). Massy (1996) wrote, "Decentralization represents the necessary condition for resource allocation reform. Absent decentralization, rigidities and misallocations would build up to the point where the institution cannot remain true to its mission or respond effectively to environmental threats and opportunities" (p. 10). This study recognizes that few universities exhibit pure centralized or pure decentralized structures. Instead, most institutions reside somewhere in between the two extremes. Notably, Meyer (1983) stated that educational organizations "can be centralized around rule systems that are unimplemented, or that would be disastrous or inconsistent if implemented" (p. 182). For Meyer, educational organizations, by virtue of the loose coupling they exhibit, can operate with more uncertainty and unevenness than technical organizations, which are "mainly controlled from the actual work or output side; market or other specifications are imposed on products" (Meyer, 1983, p. 182). As shown in figure 5, the decision-making structures within an institution fall on a spectrum between pure, centralized decision making and pure, decentralized decision making. Relevant to this study is the extent to which institutions migrate toward more decentralized decision making during the RCM implementation.

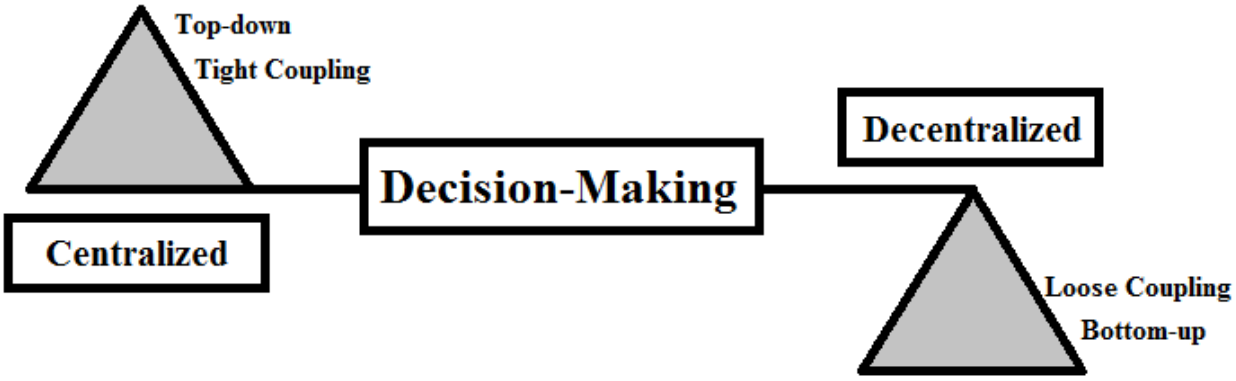

Figure 5. Spectrum of centralization in decision making. Adapted from Burke, 2007, p. 10.

Organizational Frames

Bolman and Deal (2013) provided four frames for viewing leadership and change in organizations. Likening organizational frames to tools in a toolbox, Bolman and Deal contended that leaders who possess the ability to view their organizations through multiple frames are better able to navigate complex situations. Bolman and Deal (2013) related their structural frame to the factory or machine. In the structural frame, leaders must pay special attention to the tasks to be accomplished, the technology needed to accomplish them, and the environment in which the tasks must be completed. The leaders use formalized roles and goals to routinize the tasks and thereby increase efficiency, and, ideally, effectiveness. The human resource frame focused on the familial nature of the organization, as the actors in the organization have individualized needs and skills and form relationships that are integral to the functioning of the organization. In this frame, a leader must empower the members of the organization to accomplish the task. Whereas the structural frame fails to acknowledge the contributions and shortfalls of the individual actors in the a process, the human resource frame forces leaders to confront the reality that the individuals in the organization have differing needs and skill levels; the members

in the organization can either move the process forward or hinder its process, a consideration the leadership needs to keep in the forefront of any discussions of change. Bolman and Deal's political frame focuses on the balance of power, conflict, and competition within an organization. In a political organization, leaders must be advocates for their views and must be adept at managing the interests of those around them. The symbolic frame emphasizes the culture of the organization, including the meanings, rituals, ceremony, and stories underlying its functioning. Leaders in symbolic organizations function effectively by inspiring the members; they work to create shared meaning and belief in the processes. Bolman and Deal (2013) presented the symbolic frame as a way for buy-in for a process to occur. Although the leadership required in the symbolic frame could be viewed as inauthentic if overdone, the creation of faith in a process is necessary in order to change the culture.

Organizations and Change

Organizations are dynamic and constantly changing, as individuals within organizations acquire, interpret, and respond to new information about the environments in which their organizations exist (Starbuck, 2015). Although some higher education institutions could be characterized as more dynamic and adept at changing than others, all adapt, at some level, to changes in the external environment. In order to adapt to changing circumstances, organizations such as colleges and universities must process information from the external environment. March and Simon (1958) wrote that organizations make changes with the opportunity costs in mind. For them, both action and inaction could cost the organization in different ways, depending on the goals of the

organization and its programs and the extent to which it is loosely coupled (March & Simon, 1958).

Weick and Quinn (1999) described two types of change: episodic and continuous. Continuous change was seen as the ideal for organizations, as it involved less disruption and promoted continuous adaptation to changing environmental conditions. Episodic change, by contrast, was seen in organizations in which change was intermittent and deliberate; driven by a prime mover, episodic change was seen "as a failure of the organization to adapt its deep structure to a changing environment" (Weick & Quinn, 1999, p. 366). Often precipitated by shifts in the external environment or by changes in leading personnel, Weick and Quinn (1999) described episodic change as an adaptation for the short run (p. 365-366). As described above, the disruption in the higher education markets by decreased state support, uncertainties in sponsored research funds, and increased scrutiny on both the costs and outcomes of higher education has led many institutions to a more transparent model of organizing, that of RCM. Several institutions within the sample of this study cited concerns over revenue sources as reasons for moving to RCM, including the University of Virginia, which listed "ongoing reductions to its state budget" and Temple University, which cited "economic strains in recent years" and "budget reductions totaling $113 million" as reasons for moving to a decentralized budget model (Rector & Visitors of the University of Virginia, 2014a; Kaiser, Kurichi, D'Angelo, & Quarles, 2015, p. 5). Implementation of RCM is consistent with the nature of episodic change; RCM creates disruption in higher education institutions and is most often a large departure from prior practice. The implementation of RCM most often takes place over many years, with a planned effective date for the

switch to the new management model and often a buffer or hold-harmless period to help the subunits adapt to the change with as little negative impact on the quality of their outputs as possible. Later adjustments to the RCM models could be characterized as continuous changes, and often occur as localized adaptations to the institution-wide implemented models.

According to Weick and Quinn (1999), episodic change was an intentional process involving three stages: unfreezing, transitioning, and refreezing. The unfreezing process required the organization to let its members know that the current modus operandi was going to change. The unfreezing process also included a building of anxiety for members of the organization who were to be affected by the change and a subsequent, or ideally, simultaneous, "provision of psychological safety that converts anxiety into motivation to change" (p. 372). The transition stage consisted of the alignment of members' thinking with the standards inherent in the new modus operandi. Finally, the refreezing stage solidified the new standards, helping to prevent relapse to the old ways. In a transition to RCM, these stages would be focused on increasing units' and individuals' knowledge of the operations in their areas as well as the model as a whole, so that the decentralized authority and responsibility could be met with decentralized, and accurate, knowledge, thus potentially leading to improved decision making. Although difficult to measure concretely, improvements in decision making could help institutions realize financial gains, process improvements, and gains in the quality of their offerings.

Reduction of Equivocality

Regardless of whether a higher education institution faced the positive or negative effects of ambiguity in its operations prior to the transition to a new financial model, the

large-scale changes associated with the switch to a RCM model can lead to organizational and operational confusion. This confusion, often the result of ineffective channels of communication, unreliable or conflicting sources of information, or undefined roles or goals, could reduce, in turn, the effectiveness of the new financial model, thereby potentially weakening or dooming its success. When representatives from the College of Education and Human Ecology at Ohio State University were interviewed by representatives from Temple University investigating best practices for RCM implementation in preparation for Temple's RCM transition, their response highlighted the need to reduce equivocality through effective channels of communication. When asked how they communicated with central leaders during the planning phase for RCM implementation, the leaders of Ohio State's College of Education and Human Ecology described it simply as "poorly" (Temple University, 2008).

Weick, Sutcliffe, and Obstfeld (2005) suggested that sensemaking was a process by which organizations could reduce equivocality; they defined sensemaking as "the ongoing retrospective development of plausible images that rationalize what people are doing" (p. 409). Sensemaking in organizations, according to Weick, Sutcliffe, and Obstfeld (2005), reduces equivocality through enactment, the refinement of ideas by individuals with existing knowledge; selection, the evaluation of the information still needed; and retention, the process by which an organization sorts through the existing and new information to narrow to the most relevant. Although sensemaking involves retrospection, it is not necessarily a process by which organizations should seek to rationalize past actions or to dismiss them; rather, the sensemaking process allows

organizations to gather and analyze all pertinent information in order to reduce equivocality for issues arising in the present or anticipated to arise in the future.

This study uses retrospection on the part of participants to help guide institutions toward improved RCM implementation outcomes. Institutions often have ideas of what they would do differently looking back on their implementations. When asked what he would do differently if he could redo his institution's implementation of RCM, Dr. Neil Theobald, vice chancellor for budget and administration and Indiana University, responded with "absolutely", thus skipping the step of listing what he would change and highlighting that he would make many changes, given the chance to redo IU's RCM implementation (Theobald, 2008). Theobald's response also illustrates the need to collect and analyze retrospective thoughts on RCM processes, as people involved in RCM implementations, given time to reflect on the implementation process, could provide useful information for future adopters. Meyer and Rowan (1977) argued that sensemaking could be helpful in understanding institutionalized rules, which may not be reflective of the work needing to be accomplished in the organization, but could be in place to lend legitimacy to the operations and management of the institution. For an institution seeking to change to RCM, this disentangling of the formal organization through a sensemaking process could allow the institution to build networks and rules within the organization that make the most sense for accomplishing the mission and goals of the institution.

The ongoing nature of sensemaking is essential to the success of a transition to RCM: at each stage in the planning and implementation processes, institutional leaders are likely to encounter uncertainty, the reduction of which could help improve the

outcomes of the current phase of the project. The sensemaking process, by helping an organization find meaning and come to agreement, helps reduce equivocality and allow the organization to move forward with change with increased effectiveness and efficiency. The sensemaking process also allows members of the organization to gain shared understandings and knowledge, which can help improve the change process. At each stage of the process, leaders must consider the knowledge they already have, consider what additional information they may need to proceed effectively (including with whom they should consult to gain access to such information), and then bring together all of the information into a concrete understanding of the situation at hand. Only then should the current phase of the project proceed, as without sufficient and relevant information and a shared understanding of such information, the equivocality may remain and reduce the quality of the outcomes of the current phase, and potentially future phases, of the project. Again, the continuous nature of sensemaking is vital, as the success of each phase of planning and implementation of RCM depend on the success of the preceding phases; sensemaking helps institutional leaders to ensure that they build upon successes and learn from shortcomings.

More specific to the changes needed for a move to RCM, organizations must interpret information in order to plan and implement action. Daft and Weick (1984) described the interpretation process within organizations as consisting of three stages, which formed a feedback loop: scanning, interpretation, and learning (p. 286). The scanning stage involved the collection of data from the environment and dissemination of the data to managers within the organization. Interpretation was the stage in which the data collected were given meaning through the sharing of the individual interpretations

and the development of a shared, organizational interpretation. The learning stage was the action stage, in which the organization undertook an action based on the organizational interpretation. Feedback was collected during the learning stage, which connected back to either or both the scanning and interpretation stages (Daft & Weick, 1984, p. 286).

The sensemaking and interpretation processes are essential to the planning and implementation of RCM in higher education institutions, as without a firm understanding of the external environment and the internal operations of an institution, administrative leaders cannot effectively plan for large-scale change. Leaders within institutions moving to RCM models must understand the nature of their organizations in order to achieve better results. Daft and Weick (1984) listed four assumptions about the nature of organizations. First, organizations were defined as "open social systems that process information from the environment" (p. 285). The organizations sought information relevant to the uncertainty in their environments, processed that information, and proceeded with appropriate actions. Second, the authors differentiated individual versus organizational interpretations of information, in that the organizational interpretation was derived from the sharing of information among members and the merging of individual interpretations. Third, the organizational interpretations were assembled at the top of the organizational hierarchy; although individuals lower in the hierarchy might have contributed to the information processing, the high-level members of the organization ultimately converged to create the organizational interpretation.

This convergence of the top-down and bottom-up approaches to change can require compromise on the part of faculty, staff, and administrators, as they can view the change in different ways (Kezar & Lester, 2011). According to Kezar and Lester (2011),

"compromise is quite a complicated process when there are authority or power differentials" (p. 248), thus institutional leaders could find it difficult to assemble a wide spectrum of individual interpretations of information when creating an organizational interpretation. The final assumption posited by Daft and Weick (1984) was that organizations vary in the ways in which they process information from their environments, and that the methods used in information processing influenced outcomes.

As applied to higher education institutions, these assumptions show the necessity of communication among hierarchical levels, units, constituent groups, and individuals; without the links provided through clear, frequent, and useful communications within the loosely coupled system, the change to RCM is less likely to be successful. Similarly, without the involvement of many people with weak ties, information is less likely to be transmitted effectively through the organization, and thus the change process could be less successful. Granovetter (1973) emphasized this, writing, "the removal of the average weak ties would do more 'damage' to transmission possibilities than would that of the average strong one" (p. 1366). Open communications in the planning and implementation processes associated with a transition to RCM can aid in the development and dissemination of organizational interpretations of the information needed to transition. These organizational interpretations not only inform decision making; they can also bring the many disparate units of a higher education institution together. Localized adaptation can still occur within the institution, even with clear organizational interpretations of important information; the localized adaptation along with the unified organization interpretations characterize the loosely coupled system in the higher education

organization, allowing the organization to change, but in ways that could be effective for both the wider institution and for its subunits.

Taken together, the core components of the work of Weick and his colleagues informed the research questions in this study. As shown in Figure 6, their work centers on processes of change, whether episodic or continuous. Although this study focuses on the episodic change associated with a shift to RCM, the same concepts could be applied to continuous change. Figure 6 shows how sensemaking and interpretation processes are influenced by, and in turn influence, the extent to which loose coupling occurs; those same processes lead to both individual and organizational interpretations, the latter of which can lead to wide changes within organizations. Those changes influence and are influenced by the extent to which loose coupling occurs, and combined, loose coupling and change within organizations (or the lack of change) can lead to localized adaptations, as units within organizations seek to adapt to their environments, but are separated enough to adapt in ways best suited to the needs and capacity of the individual units.

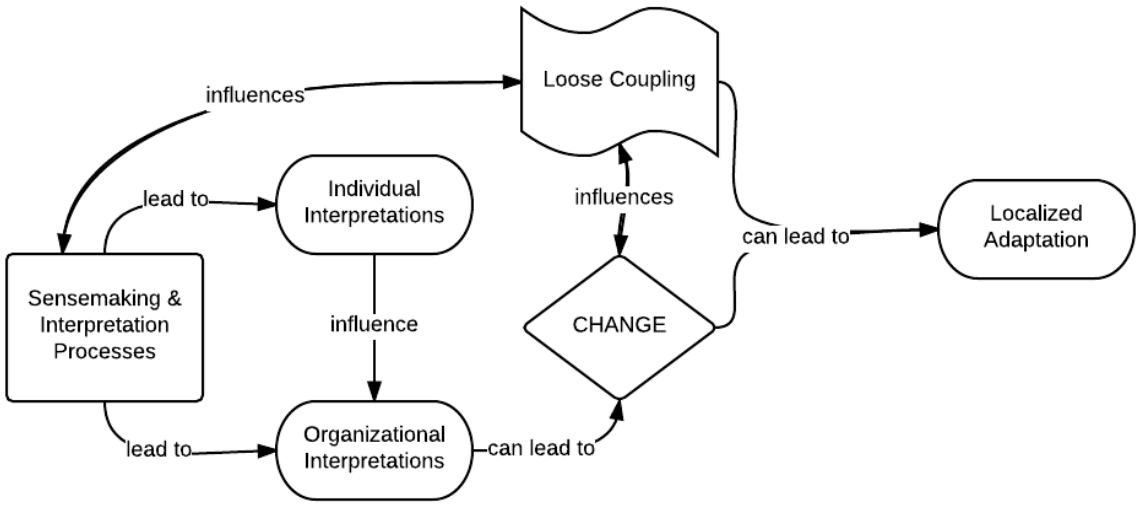

Figure 6. Bringing together the work of Weick and his colleagues. This figure illustrates how change occurs within organizations, which this study applies to higher education.

Engagement and Planning for Change

Weick (2009) argued that the process of change was more successful when it engaged people, provided a direction for the change, encouraged adaptation within the process based on new information, and enabled productive interactions among members of an organization that allowed them to focus on the desired result and development of a path to reach it. He further stated that the dynamic nature of organizations meant that they are nearly always undergoing changes; the extent to which those changes influenced the direction of the whole of the organization depended on the engagement of the individuals within the organization and practices that "incorporate direction, attention, and respectful interaction" (p. 226). Ansoff (1982) presented similar steps in his strategic planning process, including "assuring the quality of strategic decisions, making planning relevant to the participants, developing a common understanding…, making planning a personally acceptable and non-threatening activity, [and] developing political support for planning" (p. 14). As leaders in higher education institutions make the decision to implement RCM, their engagement in the process of change influences the results of the large-scale change to RCM. Without their attention to the change process, RCM practices are unlikely to be adopted across the whole of the institution. Although high-level institutional leaders are not the only people who can influence change in their institutions, by virtue of their positions, these leaders can exert wider influence than those deeper in the organizational structure. Weick (1976) observed that much time and energy was wasted in organizations as they sought to assess the effectiveness of actions in terms of their fit with the

established plans. This paper does not seek to counter his assertion, but instead posits that the fit of the actions taken by the organization with the organization's needs is positively associated with the extent to which individuals with relevant information are engaged in the planning and implementation processes.

The Change Process

As shown in Figure 7, change in higher education occurs through a process described by Weick and Quinn (1999), which involves the decision to make a change, such as the episodic change of implementing RCM, followed by unfreezing, transition, and refreezing. Pressures in the external environment push institutions to make episodic changes such as the implementation of new financial models, however, this model could also apply to continuous changes, which are not as disruptive for organizations. This study centers on the episodic change associated with RCM implementation, seeking to find out if meaningful change occurs because of an institution's decision to adopt RCM.

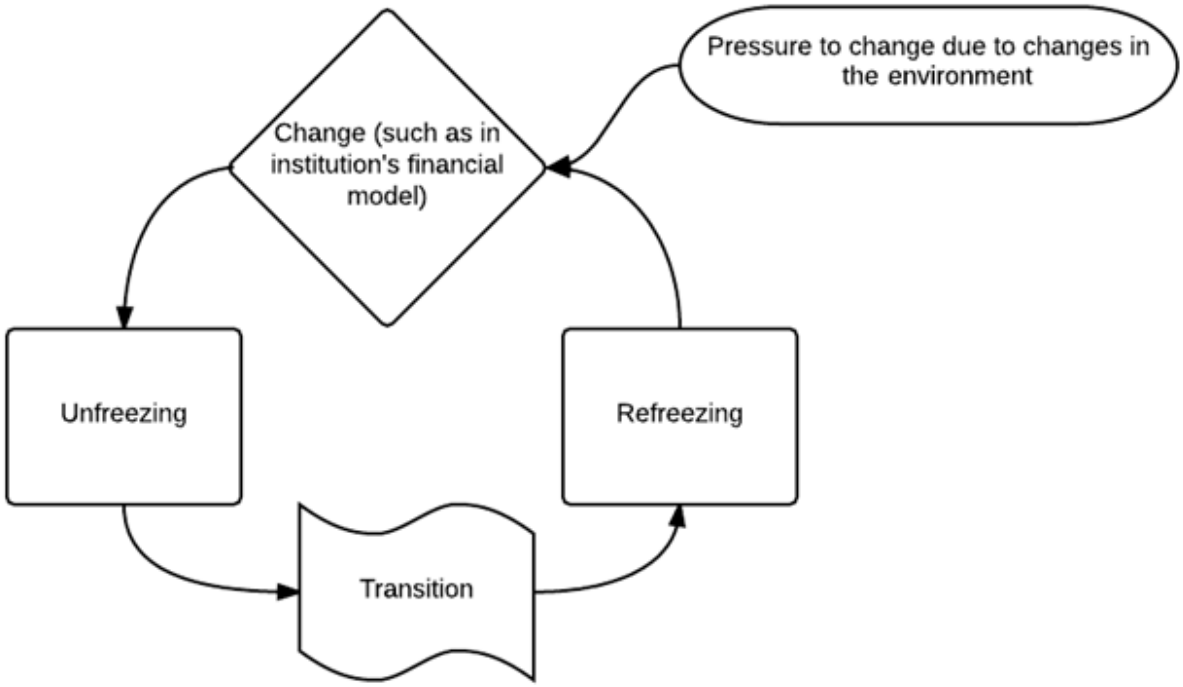

Figure 7. The change process.

Daft and Weick (1984) included in their description of the features of organizations the need for organizations to seek information in order to understand and respond to changes in the environment. Information gathered must then be interpreted, both by individuals and at the institutional level, with the institutional interpretation forming the basis for wide-scale organizational changes.

Academic Management Fads

Birnbaum (2000) classified a variety of management techniques that have moved from the business sector and government to higher education as academic management fads. He defined these fads as "management innovations borrowed from other settings, applied without full consideration of their limitations, presented either as complex or deceptively simple, relying on jargon, and emphasizing rational decision making" (Birnbaum, 2000, p. 5). Additionally, Birnbaum (2000) described a fad as "a paradox of complexity and simplicity. Its central ideas may appear brilliantly original. Yet at the same time they are so commonsensical as to make us wonder why we had not thought of them ourselves, and so obviously reasonable as to defy disagreement" (p. 5). Often originating in the business or government sectors, administrative management fads are adopted by higher education institutions as they attempt to navigate the pressures in their environments. Although often the assumption in administration is that closer management will lead to improved outcomes, Birnbaum (1988) speculated, "contrary to our traditional expectations, at least in colleges and universities, management and performance are not closely related" (p. 4). Additionally, he proposed "attempts to

'improve' traditional management processes might actually diminish rather than enhance organizational effectiveness in institutions of higher education" (p. 4).

This study utilizes Birnbaum's definition of academic management fads as well as his conceptualization of their life cycle in higher education, as shown in Figure 8. The first stage in a fad is the creation stage, where "crisis is claimed to exist in an organizational sector, usually related to a major change in the larger social system…the adoption of a new management technique is proposed to solve the problem" (Birnbaum, 2000, p. 126). The proposed solution has strong advocates, narratives of success, and enthusiastic early adopters, which promote additional organizations to implement the technique as well. The narrative evolution stage involves the building of the narratives of success, such that adopters are lauded while the organizations that do not adopt are described as "resistant to change, conservative, wasteful, and self-interested" (Birnbaum, 2000, p. 130). During the time-lag phase, the success narratives, especially those promoted by people within adopting organizations, continue to build until the new technique's adoption peaks; meanwhile, counter-narratives build. Narrative devolution occurs when "the power of the original creation narrative is challenged by a new narrative of skepticism" and "data collected by scholars and other observers studying the new technique indicate that it failed to produce its promised results" (Birnbaum, 2000, p. 130-131). This strong feeling of pessimism persists well into a resolution of dissonance period, which has significant overlap with the narrative devolution period. Resolution of dissonance acknowledges that there were issues with the new technique, but seeks to rationalize them in such a way that permits the substance of the technique to reappear in the form of another technique, thus allowing the academic management fad life cycle to

begin anew, as shown by "creation 2" in Figure 8 (Birnbaum, 2000, p. 132). By analyzing the extent to which institutions achieve success in their implementations of RCM, this study illuminates the extent to which RCM fits into the academic management fad mold.

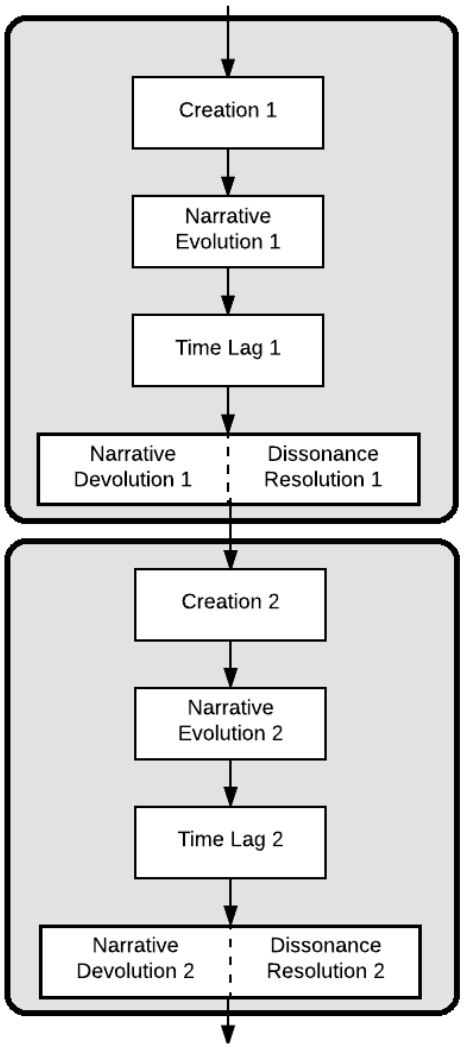

Figure 8. Life cycle stages of the fad process. From Birnbaum, 2000, p. 127.

Rising Costs, Uncertain Revenues

Johnstone (2011) highlighted three themes of modern higher education policy: quality, access, and efficiency. All three themes, according to Johnstone, are connected to the political economy of higher education, as quality programs must be funded, students must have access to instructional programs, which cost money to operate, and efficiency

relates to the manner in which institutions balances their revenues with their costs (p. 316). Higher education institutions have become more reliant on the revenues for which they have to compete. These include tuition and fees, legislative appropriations, sponsored research grants, and philanthropy (Fowles, 2014; Kirp, 2003). This makes it more important for institutions to focus on quality, increase access, and, most relevant to this study, improve efficiency in their operations. Cridland (2014) emphasized that "in the years ahead, universities are going to be more entrepreneurial, more responsive to student needs and more willing to demonstrate value for money" (p. 61). Cridland (2014) wrote that the current political economic climate necessitated such movements by higher education institutions, and believed that partnerships with the business sector could help institutions achieve their aims.

Public institutions of higher education in the United States recently have experienced decreasing revenues from state appropriations; therefore, these institutions have become more dependent on revenues acquired from external sources, especially those for which they must compete through fundraising, grant writing, and enrollment management (Wilson, 2013). Additionally, as institutions have come to rely more heavily on these so-called competitively acquired revenues, the revenues on which they depend most have shaped institutional decision making and activities. Fowles (2014) showed that, consistent with the resource dependency theory of Pfeffer and Salancik (1978; 2003), higher education institutions shifted expenditures based on their shifting sources of revenues. According to Pfeffer and Salancik (1978), "it is the fact of the organization's dependence on the environment that makes the external constraint and control of organizational behavior both possible and almost inevitable" (p. 43). Thus, the external

environment can drive institutional decision making, especially when the external environment plays such a large role in institutional financing. For Weisbrod (1998), this resource dependence meant that institutions had to decide to accept the restrictions and/or strings that could be attached to certain types of revenues or forgo such revenues because "no source of revenue has unambiguous effects" (p. 16). These revenue effects could cause mission shifts in higher education institutions, as the strings attached to a revenue source could cause the institution to place efforts in an area ancillary to the core mission of the institution.

For public institutions, the use of higher education as states' "balance wheel" has created uncertainty in their budgeting, as states have cut higher education budgets more in times of stress, knowing that the institutions are able to bring in tuition revenues (Delaney & Doyle, 2011, p. 343). According to Delaney and Doyle (2011), this use of higher education as a discretionary budget area that can take on the biggest cuts has essentially de-linked appropriations and support for enrollments. They argue public institutions did not proportionally reduce their enrollments during times of state budget cuts. Although institutions did increase their tuition rates, state appropriations did not keep pace. Absent significant philanthropy to provide additional financial aid to students, institutions experienced a decrease in the affordability of their programs, as they put more of the financial burden on students and parents. Weerts and Ronca (2006) stated that this decaying relationship between public institutions (especially universities) and the states, as shown by decreasing state appropriations for higher education, is causing institutions to rely more on tuition revenues and private support to continue operations.

Archibald and Feldman (2008) showed that while higher education has dealt with uncertain state revenues, it has also faced costs that are increasing at rates both higher than non-personal service industries and other sectors of the personal service industry, especially where those sectors can rely on less of a highly educated labor force (p. 289). Two of the many theories that seek to explain rising costs in higher education are cost disease and the revenue theory of costs (Paulson, 2016). Cost disease theory states that the costs in personal services industries, such as higher education, increase faster than in non-service industries because of competition for qualified labor and the difficulties associated with increasing productivity without compromising quality. Cost disease theory suggests that costs, especially personnel costs, can only be controlled through productivity growth, usually through advances in technology (Archibald & Feldman, 2008). In the case of higher education, this is manifested as institutions compete for highly educated labor that cannot easily be replaced with lower-cost labor or technology without a perceived or actual loss in quality. Universities can reduce costs using contingent faculty rather than tenured faculty for instruction, the use of web-based modes of instruction, and increases in class sizes. These cost-cutting measures could be seen as detrimental to the quality of instruction. In the case of research conducted at universities, the competition for highly educated labor cannot be ignored as a driver of costs, as the cost-cutting measure of using contingent faculty for teaching is not viewed as a viable option for the research mission. Immerwahr, Johnson, and Gasbarra (2008) described this trade-off as a function of the "iron triangle" of higher education, in which costs, access, and quality appear to be inextricable from one another. A cost reduction often

necessitates a reduction in quality or access; an increase in access often necessitates an increase in costs, etc. (p. 10).

Bowen (1980) argued through his revenue theory of costs that colleges and universities increase their expenditures to match their revenues. Because these institutions provide valuable social goods for which demands far exceeds supply, as revenues increase, they are quickly consumed by costs. Archibald and Feldman (2008) argued that cost disease is the primary explanation for increasing costs in higher education, as increases have mirrored increases in other service industries; however, the revenue theory of costs does explain some expenditure patterns because many institutions operate as non-profits and therefore reinvest excess revenues in their operations, thereby appearing to increase costs as they increase revenues (Archibald & Feldman, 2008).

In addition to the factors listed above, the costs at many institutions of higher education have risen because the institutions require a large number of highly educated employees; the salaries paid to these employees generally have risen with increases in the consumer price index (Baumol & Blackman, 1995). Institutions strive to pay their employees competitively in order to bolster recruitment and retention of high-quality employees; thus, the average salary (unadjusted for inflation) has risen over time (Baumol & Blackman, 1995). Like other service industries that are primarily reliant on personnel efforts, higher education faces rising personnel costs without proportionate increases in productivity; this “cost disease” effectively prevents labor-intense service industries from substantially changing the trend of increasing costs (Baumol & Blackman, 1995). Many institutions are working to increase their net revenues through the expansion of distance education, but like other producers in service industries, they

will likely continue to see their costs increase faster than the rate of inflation (Archibald & Feldman, 2011). Additionally, per the work of Immerwahr, Johnson, and Gasbarra (2008), this significant focus on cost optimization through the expansion of distance education could risk real or perceived declines in the quality of instruction and potentially the institution as a whole. The authors, in their interviews with college and university leaders, also found that leaders did not necessarily see the potential for substantial cost savings associated with the expansion of distance education (p. 15-16).

Higher education institutions have faced increased competitiveness and scrutiny by the government, the public in general, and the consumers for the past 50 years (Weisbrod, Ballou, & Asch, 2008). Consumers and governments often request information that demonstrates the cost-effectiveness of higher education in order to gauge its contribution to individuals and society, which is difficult for institutions to quantify and demonstrate given that institutions seek to advance and perpetuate knowledge. The U.S. Department of Education publishes annual reports of "financial responsibility scores," for private non-profit and proprietary postsecondary institutions which are criticized for their misrepresentations of financial data; these and other forms of public scrutiny have placed increased pressure on higher education institutions to demonstrate sustainable financial health (Alstete, 2014). Essentially, higher education institutions face scrutiny from many angles that can lead them to change. Meyer, Scott, and Deal (1983) summarized this problem, writing that educational institutions, because they are often judged as if they were technical organizations, are perceived as

> weak and ineffective organizations with little internal rationalization of the work, little capacity to produce useful effects as measured by student performance, and

> little ability to defend themselves from environmental intrusions. To a few, the schools seem to be essentially fraudulent organizations; to others, they are classic examples of organizational ineptitude. (p. 48)

Although scrutinized, Kerr (2001) thought that public universities especially could strengthen support from the public by focusing on more than just their state leaders; Kerr called for a "reinvigorated land grant model" with more emphasis on education extension to help with public opinion and support (p. 189-190).

Toutkoushian (1999) discussed the competing priorities of public institutions, as they simultaneously seek to maximize their outputs, specifically their value to society, and seek to minimize their costs. Expenditures at institutions of higher education are expected to contribute to the growth in human capital, one of the primary outputs of higher education (Leslie, Slaughter, Taylor, & Zhang, 2012). Leslie, Slaughter, Taylor, and Zhang (2012) stated that the activities of institutions are in constant competition for resources, specifically expenditure authority. This competition is especially seen between research and instructional activities, but according to Leslie et al. (2012), institutions generally maintain fidelity between revenues from activities and expenditure authority. Although funds are often fungible, institutions generally keep proportions of revenues and expenditures for activities such as research and instruction in line; revenues from tuition are generally spent on undergraduate and graduate instruction, student services, and student financial aid (Leslie et al., 2012).

Responsibility Center Management

Given the relatively short history of RCM in higher education institutions, the research available on the topic is relatively limited. However, there have been studies and

reviews of RCM at implementing institutions (Cekic, 2010; Class, 2004; Courant, Hanlon, Knepp, & Schweitzer, 2008; Courant & Knepp, 2002; Curry, Laws, and Strauss, 2013; DeHayes & Lovrinic, 1994; Duderstadt, 2007; Hearn, Lewis, Kallsen, Holdsworth, & Jones, 2006; Lang, 2002; Leitzel, Corvey, & Hiley, 2004; McBride, Neiman, & Johnson, 2000; McGarvey, 2005; Gros Louis & Thompson, 2002; Johnson, 2005; Pappone, 2016; Rahnamay-Azar, 2008; Rodas, 2001; Strauss, Curry, & Whalen, 1996; Whalen, 1991; Whalen, 1996; Willett, 2013; Zierdt, 2009; etc.), which have largely described the results of implementation, such as at Indiana University (Whalen, 1991; Whalen, 1996) and considerations for and/or changes to the model methodology years after the fact, as occurred at the University of Michigan (Courant, Hanlon, Knepp, & Schweitzer, 2008; Courant & Knepp, 2002). Other pieces have focused on the efficiency of RCM models (Wilson, 2002) and the rules and processes associated with year-end variances for the units (Lumina Foundation, 2016). Leslie, Oaxaca, and Rhoades (2002) studied revenue shifts at institutions that implemented RCM, "expecting to find that incentive structures were systematically and effectively moving public universities toward the generation of more and more of their own revenues through a conscious, strategic, entrepreneurial effort" but found "instead…a set of incentive structures that often were of little apparent effect, other than to generate a good deal of internal hostility" (p. 88).

Priest, Becker, Hossler, and St. John (2002) stated that while the budget system employed by an institution was reflective of the institution as a whole, more importantly, "budgeting systems at public universities cannot be separated from the larger economic and public policy environment in which they operate" (p. 2). Institutions decide to

implement RCM primarily as a response to their changing environments; as described above, the declines in state support for higher education, increased scrutiny about rising tuition costs, and other factors lead institutions to seek ways to slow the growth of their expenditures and sustain, if not grow, their revenues. RCM, by virtue of its decentralization of authority and accountability, requires increased and decentralized knowledge of institutional operations, which can lead to improved decision making and potential improvements in the financial positions of institutions. Agostino (1993) described how the lack of good data, or reasons to pay attention to good data, if such data did exist, was pervasive at Indiana University-Bloomington prior to RCM implementation:

> We did not have good budget data nor financial management systems. Under the old system we simply did not know what things cost, nor to what specific purpose monies were expended. Academic administrators succeeded and advanced by overspending, often recklessly. Fiscal naiveté was a scholarly virtue. (p. 25)

Chabotar (1999) summarized the pre-RCM problem as "that a mission-critical department requires a subsidy is not a problem; not knowing that a subsidy is needed is a problem" (p. 19). Although speaking of the situation at Indiana University prior to its RCM implementation, Chabotar and many of his colleagues faced issues of knowledge and transparency common to more centralized and incremental budget models. By making the move to RCM, Indiana University hoped to operate more efficiently in a time of uncertain revenues and increasing expenditures, a move undertaken by few institutions, all private, prior to the implementation at Indiana University. It has been undertaken by many more, including public institutions, after Indiana University's shift.

As the first public university to undertake RCM, Indiana University has been the focus of several articles, book chapters, and books (Cekic, 2010; DeHayes & Lovrinic, 1994; McBride, Neiman, & Johnson, 2000; Gros Louis & Thompson, 2002; Johnson, 2005; Whalen, 1991; Whalen, 1996; Willett, 2013). Whalen (1991) used his experience as the head of the budget office at Indiana University during the years before and after RCM implementation to give a detailed account of how the process unfolded, as well as an early look at the results. Gros Louis and Thompson (2002) described the structure of RCM at Indiana University, focusing their discussion on the two reviews conducted by IU to evaluate the effectiveness of RCM and propose changes to the IU model as needed. The authors summarized the case of Indiana University, but touched little upon the planning necessary to ensure smooth implementation, instead focusing on the attributes of the IU model, beneficiaries of the change, potential problems, and the two reviews undertaken post-implementation by an IU task force. The authors devoted a short section to "Averting the Potential Problems," but the section was limited to promoting the importance of commitment by institutional leaders and the formation of a campus-wide curriculum committee (Gros Louis & Thompson, 2002, p. 98). Cekic (2010) used interviews of faculty and staff conducted by another researcher during the Indiana University implementation in 1989-1990, as well as interviews he conducted ten and fifteen years after implementation to determine how the frames with which employees viewed decision making under RCM changed over time. Using the frames proposed by Bolman and Deal (2003), Cekic found that the use of the structural frame increased over time, while the political frame decreased, for both administrators and faculty members interviewed. McBride, Neiman, and Johnson (2000) examined how the implementation

of RCM changed the Indiana University School of Nursing over a ten-year period and came to the conclusion that the change helped to empower the school to transform itself to meet the needs of its faculty, staff, students, and community. Johnson (2005) used economic modeling to examine the effects of RCM on budget planning within three schools at Indiana University (Schools of Education, Dentistry, and Allied Health Sciences), and found that the political environment persisted in the schools' departments, with the preferred method for allocating resources within the school remaining incremental in nature (p. 250). Cekic (2010) found that the "human aspect of the institution and institutional culture slowed down the [RCM implementation] process" (p. 80) and, using Bolman and Deal's (1997) frames, found that the importance of the structural frame increased during the post-implementation period, in keeping with the increased availability of data and transparency in decision-making processes. Cournoyer, Powers, Johnson, and Bennett (2000) used economic modeling within IU's School of Social Work after RCM implementation to assess the costs and benefits of its programming; their analyses enabled the school to make better decisions, thus reiterating both the need for data and the improvement of data quality as benefits of the RCM model (Curry, Laws, & Strauss, 2013).

RCM tends to exist at larger universities, as the complexity of the institutions lends itself to improved management through decentralized accountability and responsibility. Smaller institutions tend to have less complexity, thus potentially allowing for more efficient management by central offices (Gayle, Tewarie, and White, 2003). RCM exists in many different forms; as institutions implement its practices, they do so in a manner that institutional leaders believe best fits the unique characteristics of the

institution. Zierdt's (2009) review of literature on RCM concluded that institutions need to choose a model that helps them meet their mission, and "it seems likely, therefore, that a hybrid approach to budgeting will become the norm within institutions of higher education, especially with the increased demand for reform of how scarce resources are allocated" (p. 352). Cantor and Courant (2003) described how the University of Michigan "almost went to a thoroughgoing responsibility-centered management system," but instead moved to a hybrid RCM model because the former

> threatened what is at the heart of our institutional identity, precisely because building the collective good is slow, expensive, shared, and not profitable in the marketplace of student credit hours or sponsored research-that is, interdisciplinary or collaborative work is expensive, service learning and community-based research are rarely profitable, Web-based course tools are too expensive to reproduce for each unit, a school of art will never make money, and digital libraries cannot replace the papyrus in our collections. (Cantor & Courant, 2003, p. 6)

Institutions implementing RCM often choose to implement modified RCM models to cater the model to the institutional environment. Bray (2012) listed three ways through which institutions can implement territorial decentralization, as would be required in RCM implementation. Deconcentration, the weakest form, involves some central staff working in decentralized offices. Delegation "implies a stronger degree of decision making power at the local level. Nevertheless, powers in a delegated system still basically rest with the central authority, which has chosen to 'lend' them to the local one" (Bray, 2012, p. 202). The ultimate form of territorial decentralization is devolution,

where the institution units have the authority to make their own decisions without the approval of the central office (Bray, 2012). While designing an RCM model, institutional leaders have to make decisions about the extent to which they will employ territorial decentralization. This decision often differentiates RCM models implemented at different institutions.

At the University of Illinois – Urbana-Champaign in 1997, the provost responded to an author's question about the institution's new RCM model with:

> We try hard to refer to our effort simply as "budget reform." There are some RCM-like elements in the design, but the overall system is some distance from having a classic RCM form. By avoiding labels that imply a set model, we have managed to keep the focus on improving practice through an iterative process, rather than driving the campus toward an up-or-out decision on a package. (Newfield, 2008, p. 167)

Porter's (2013) "Variations on a Theme of RCM" described from the perspective of chief business officers, the status and models of RCM at four institutions: Saint Joseph's University, the University of Cincinnati, Northeastern University, and the University of Florida, highlighting the variety of RCM models in place. Additionally, the implementation timelines and adjustments to the models after implementation vary from institution to institution (Agostino, 1993).

Curry, Laws, and Strauss (2013) presented nine cases of universities that transitioned to RCM; however, the cases focused very little on the planning and early implementation phases of the transition, and especially little on the extent to which people at varying levels within the organizations were engaged in the processes. Indeed,

only four of the nine cases (the University of Kentucky, Medical University of South Carolina, Ohio University, and Texas Tech University) discussed planning at all, as five of the nine cases (Indiana University, the University of Pennsylvania, the University of Southern California, the University of Michigan, and Vanderbilt University) focused on institutions that had "matured" in their use of responsibility management. The four cases that did discuss pre-implementation planning discussed the formation of a presidentially (or vice presidentially) convened committee or task force tasked with evaluating the current model and providing recommendations for a move to RCM. The authors described how the University of Kentucky formed the Financial Systems Accountability Committee (FSAC), composed of an array of stakeholders, to examine the pre-RCM funds flow at UK. The findings of the committee, including the misalignment of the pre-RCM funds flow and the guiding principle goals of the UK budget model, helped the University develop its eventual RCM model (Curry, Laws, & Strauss, 2013, pp. 60-62). At the Medical University of South Carolina, after some leadership turnover, planning for a transition to RCM moved forward smoothly with an emphasis on transparency and a strong partnership between the provost and the vice president for administration and finance (Curry, Laws, & Strauss, 2013, pp. 65-67). The Ohio University case illustrated the importance of service agreements between administrative units and the units they serve (Curry, Laws, & Strauss, 2013, pp. 67-70). The authors briefly discussed the challenges Texas Tech University faced with regard to its relationship with the state of Texas and its funding formulas, which had held down tuition increases but encouraged a proliferation of fees. Leaders at TTU decided to scale back their plans for RCM implementation and phase in changes over several years to mitigate risk (Curry, Laws, &

Strauss, 2013, pp. 70-73). Beyond stating that stakeholder input was important, these brief cases focused more on the results of planning than on the process, thus providing little information about the planning phase for future implementers. Other studies have described how RCM functions at institutions such as the University of Michigan (Courant, Hanlon, Knepp, & Schweitzer, 2008; Courant & Knepp, 2002; Duderstadt, 2007), the University of Toronto (Lang, 2002), the University of Minnesota (Hearn, Lewis, Kallsen, Holdsworth, & Jones, 2006; Pappone, 2016), the University of Southern California (Strauss, Curry, & Whalen, 1996; Rahnamay-Azar, 2008; Zierdt, 2009), Ohio State University (Zierdt, 2009), the University of Pennsylvania (McGarvey, 2005), Marquette University (Class, 2004), the University of New Hampshire (Leitzel, Corvey, & Hiley, 2004), and Pierce University (Rodas, 2001). Various authors have also provided shorter descriptions and cases of RCM at selected institutions in their writing (Douglas, 2000; Hanover Research Council, 2008; Porter, 2013).

Practices of RCM

Colleges and universities have adopted RCM for many reasons. For public universities, one of the driving factors is decreasing state support for higher education, as state leaders feel that institutions of higher education, by charging tuition, can generate revenues and thus do not require appropriations to the same extent as other discretionary fund recipients, such as elementary and secondary education and infrastructure (Fowles, 2014). While RCM itself does not generate new revenues for the institutions that adopt its practices, it helps to bring academic and financial planning closer together, which helps faculty and administrators make more data-driven decisions (Curry, Laws, & Strauss, 2013).

According to Curry, Laws, and Strauss (2013), the major features of RCM are that:

> tuition and research revenues are allocated to colleges and schools (responsibility centers) that generate them, facilities and central administration costs are allocated to responsibility centers in proportion to space occupied and central services consumed, and a central pool of resources…is allocated…to support university priorities. (p. 8)

RCM seeks to attribute revenues and costs to the units within a higher education institution, so that those units will be able to plan their activities more responsibly and with increased reliability and predictability, as the units, through the decentralization of responsibility and accountability, gain more insight into the costs of their operations. According to Goldstein (2005), this insight is one of the main priorities of the model, as it "forces institutions to ask questions about how revenues should be shared and the degree to which central services should be funded…[and] encourages a much broader understanding of institutional finances" (p. 172).

Figure 9 illustrates the practices of RCM from the perspective of schools and colleges within an institution. Revenues, shown in green boxes, flow to schools and colleges, as well as to central administrative units such as human resources and facilities management and central executive units such as the offices of the president and provost. Depending on how an institution chooses to implement RCM, a portion of tuition revenues could flow to the central executive units in the form of a subvention tax (a tax on revenue-generating units to sustain a pool of funds to support units than need additional support) or, as in the model implemented at the University of Virginia, to fund

institutional undergraduate financial aid, such that the schools within the University of Virginia receive undergraduate tuition revenues net of financial aid (Rector & Visitors of the University of Virginia, 2014b). Institutions could choose to have state funds appropriated directly to the schools or colleges flow directly to them, while keeping the rest within the central executive to contribute to subvention or strategic investment pools. Other revenues, such as endowment revenues, sponsored research funds, and sales and services revenues, flow to the units under RCM. Schools and colleges are responsible for funding their direct expenditures as well as indirect cost allocations for the services provided by the central administrative units and the leadership provided by the central executive units (Curry, Laws, & Strauss, 2013).

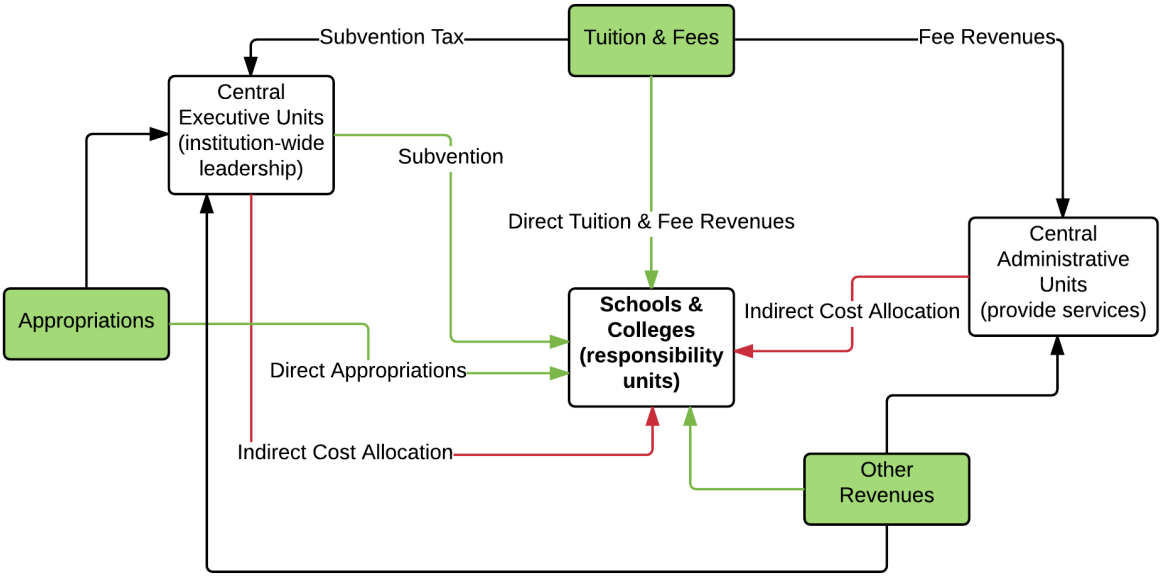

Figure 9. Schools' and colleges' place in RCM. Figure adapted from Curry, Laws, and Strauss, 2013, p. 27.

Thomas Ehrlich, then President of Indiana University, led the first implementation of RCM at a public institution of higher education in the United States, with full

implementation beginning in 1990. At the time, Indiana University, like many other public institutions, was facing the prospect of uncertain enrollments and state support, as Ehrlich stated in an address to the Board of Trustees of Indiana University in 1990, "many are deeply concerned about the economy and its impact on the state and on the budget for higher education" (Indiana Board of Trustees, 1990). Twenty-five years after implementation at Indiana University, numerous public universities have implemented similar models for decentralization of responsibility and accountability, and many more are in the process of deciding to implement such changes due to continuing issues with long-term financial security. The implementation at Indiana University, being the first at a public institution, showed other public institutions a way to implement RCM within the constraints of state funding and policy.

> Ehrlich's practices of RCM at Indiana University were
>
> (1) all costs and income attributable to each school and other academic unit should be assigned to that unit; (2) appropriate incentives should exist for each academic unit to increase income and reduce costs to further a clear set of academic priorities; and (3) all costs of other units, such as the library or student counseling, should be allocated to the academic units. (Whalen, 1991, p. ix)

The incentives built into RCM can vary based on the methodology adopted by each institution; however, the basic practices of RCM serve as incentives to enterprising units. For example, unlike in incremental models, which tend to encourage year-end spending, RCM allows units to receive all revenues earned (less taxes, if applicable) and carry forward year-end balances in reserve, thus allowing for more prudent and future-minded spending (Kosten, 2009; Stocum & Rooney, 1997). Although some public institutions

may be limited in their ability to allow for carry-forward practices by their boards or state legislatures, they can find alternative incentives for their constituent units within the RCM framework. Stocum and Rooney (1997) provided an example of this incentive in action at Indiana University-Purdue University Indianapolis, writing,

> The School of Science used this "carry-forward principle" to generate approximately $380,000 in cash for FY 1990-91 that could be used for new faculty start-up packages, matching funds for grants, upcoming moving expenses, and the establishment of a small enrollment shortfall reserve fund. (p. 5)

Regardless of the reasons for adopting RCM or the form it takes upon implementation, RCM models have in common the practices of full attribution of direct costs and revenues and allocation of indirect costs to constituent units and maintenance of incentives (Curry, Laws, & Strauss, 2013; Whalen, 1991).

Although a seemingly simple model in theory, RCM requires coordination and communication at all levels within an institution; in addition to years of planning and at least one trial-period year, a successful implementation of RCM also requires significant follow-up, re-evaluation, and flexibility for continued change. Whalen (2002) listed the requirements for successful RCM implementation as a motivated central administration, an institution with sufficient size and complexity, a change in how the institution is being funded, such as a decrease in state appropriations, IT systems that allow for decentralized management, and an institutional culture prepared for change. He noted, “Only a happy coincidence of circumstances at an institution makes putting [responsibility center management] in place possible” (Whalen, 2002, p. 18). Balough and Logue (2013) identified the steps necessary for RCM implementation as the decisions surrounding the

identification of responsibility centers, allocation of revenues, allocation of costs, and charges and assessments for responsibility centers (Balough & Logue, 2013, pp. 135-140). The authors identified two types of responsibility centers, the revenue-generating units and the service-providing units, and specified that institutions looking to identify their responsibility units take into account unit size, "degree of financial autonomy," the proposed unit's place in the organizational structure of the institution, and the proposed responsibility center's ability "to take advantage of scale economies" (Balough & Logue, 2013, p. 135). As such, the movement of public universities from a centralized and incremental model to an activity-based and decentralized model of budgeting and accountability is a major undertaking for all involved.

Many institutions transition to RCM from a more centralized and incremental form of budgeting and accountability. In contrast to many incremental models, RCM allows for greater accountability and transparency through decentralized management, which can help institutions ensure that their resources are used prudently, so that "mistaken decisions or even wishful thinking about costs versus benefits makes real differences close to home" (Lang, 1999a; Lang, 1999b, p. 6). For example, RCM can help an institution "to account fully for the costs of research and to ensure that auxiliary or ancillary services that are supposed to be self-funding really are" (Lang, 1999b, p. 5). Given the lessened proportion of state support in public university budgets in recent years, a budget model that helps bring about better stewardship of limited resources is essential (Breneman & Yakoboski, 2011). The increased accountability and transparency afforded by the RCM model is promoted as a way to help higher education institutions weather times of financial stress and fluctuating sources of revenue (Strauss, Curry, &

Whalen, 1996). Strauss, Curry, and Whalen (1996) described the University of Southern California prior to RCM implementation as a place where "dissidents and dissonance were on the rise" (p. 176), as deans believed that they were not being given access to revenues they generated. Combined with declines in enrollment and resulting hiring freezes, USC's leaders knew they needed to pursue a change that could bring greater transparency to the budget allocations and process, with the hope that such a change would also help improve the institution's financial situation (Strauss, Curry, and Whalen, 1996).

Benefits of RCM

The implementation of RCM can bring many benefits to the adopting institution. The model requires decentralization as compared to the incremental budget model; this allows decision making to take place at the level in which the activity occurs. Not only can this make for improved decision making, but it can also encourage entrepreneurial activity, as the activity units, under the RCM model, have increased knowledge of their true revenues and expenditures and work to bring them into balance (Bava, 2001). By increasing transparency among the units, RCM reveals problems but equips the units with the knowledge required to find solutions (Lang, 1999a). This decentralization of knowledge can lead to cost savings, as the incremental model "does not examine the budget base or the array of existing fiscal commitments, but focuses on changes to those commitments; incrementalism is driven more by political demands than by analytical assessments of requirements" (Meisinger & Dubeck, 1984, p. 183). Thus, the units within institutions utilizing incremental budgeting are not equipped to make decisions that could lead to increased efficiency and quality. Alstete (2014) summarized the critiques and

benefits of incremental budget models, stating, “Although this type of system is appealing because it is easy to operate, it is not helpful to identify how costs occur or contribute to revenue creation” (p. 100). Meisinger and Dubeck (1984) concurred with Alstete, writing, “Incrementalism does not encourage the rational examination of the full spectrum of policy choices and selection of the best one; the objective of incremental decision making is to minimize conflict rather than to make the best policy choice” (p. 183). Therefore, under the incremental and more centralized budget models, decisions are often made either at a level too far removed from the unit of activity, and thus may not be the best decisions for that activity, or at the level of the unit of activity with little knowledge of or regard to the financial impact of the decision. While describing the weaknesses of the incremental model, Meisinger and Dubeck (1984) did acknowledge that the model’s simplicity has allowed it to thrive, as the incremental model continues to be the dominant budgeting approach in higher education despite the emergence of many new budget management models, including the recent surge in interest in RCM.

RCM can also bring about changes that increase revenues for units and the institution as a whole. Willett (2013) conducted a longitudinal study of RCM at Indiana University-Bloomington and found that the campus was able to grow during the period following implementation, despite declining state appropriations. Brand (2000) highlighted that the implementation of RCM at Indiana University helped incentivize departments to open additional sections of courses to meet student demand. He cautioned, however, that under RCM and other budget models, colleges and universities have increased their use of adjunct and non-tenure-track faculty and graduate students to cover teaching obligations, increasing the perception of teaching as a less valuable part of the

institutional mission than research. Jaquette, Kramer, and Curs (2016) used a synthetic control method to estimate changes in tuition revenue because of RCM adoption at four public research universities and found evidence of increased tuition revenue generation at three of the four institutions. Similarly, Fethke (2014), using a calibrated model of tuition setting and data from the University of Iowa and the University of Florida, found that decentralized budgeting, when paired with targeted subsidies and a flexible tuition structure, can "increase enrollment, reduce average tuition, increase welfare, and accommodate lower taxpayer support" (p. 323). Brand (2000) proposed a "pathways strategy" to faculty work assignment, paired with decentralized budgeting models such as RCM, to bring teaching back to the forefront while simultaneously providing the funds to units to incentivize such a move (p. 44).

Under incremental budgeting, the units see little benefit to entrepreneurial activities, as successful ventures are not necessarily rewarded with increased expenditure budgets for the unit above the planned incremental increase. Under incremental models, the units do not necessarily have access to the increased revenues as they do under RCM models. This is not to say that RCM models lead to increased revenues, but rather that if revenues increase, constituent units within RCM institutions should see their shares change according to how their actual revenues changed. For example, if the institution as a whole brings in increased revenues, but one of its schools has decreased revenues, the school with decreased revenues should expect to see a decrease, rather than an increase, in its direct revenues. The school with decreased revenues may receive additional subvention to make up the difference, but that subvention would be a form of indirect revenues. Under an incremental model, since the institution as a whole saw its revenues

increase, the school that lost revenue might not be aware of its losses, as its direct revenues are not necessarily attributed. A different, but also financially detrimental, situation also arises under more centralized models, as "incentives, the reward structure, and signals in the form of information on the consequences and benefits of action at the operating unit level often do not promote behavior that accomplishes institutional objectives" (Whalen, 1996). The two situations combined can lead to low levels of innovation in teaching, research, and service activities and their administrative supports, as well as the potential preservation of activities that fail to thrive – a potentially risky combination for institutions with unstable sources of revenue and high levels of committed expenditures. Under RCM, entrepreneurship is encouraged, as the incentives inherent in the model lead deans to try to maximize revenues and minimize expenditures (Rodas, 2001).

For a research university, RCM can be especially useful, as its implementation can lead to a better accounting of the true costs of research activities (Lang, 1999a). Research is a core part of the mission of the research university, but it is one that receives subsidy from other sources (Brewer, Gates, & Goldman, 2002; Massy, 2016); knowing its true cost can help research institutions make their research-related expenditures more efficient. This allows the institutions to continue to conduct high-quality, industry-leading research well into the future, while also making rational, information-based decisions about their budget priorities. RCM can help research administrators to better guide faculty and their departments about grant proposal submissions and their budgets, as the model requires improved accounting of indirect cost recoveries and the impact of cost-sharing requirements.

A RCM budget model can allow institutions to make more prudent decisions around their personnel budgets. Rather than central offices budgeting incrementally, units in a RCM model are encouraged to evaluate the need for positions that they wish to create, within the larger context of their full revenue and expenditure budgets, information they likely did not have access to under an incremental model. At the same time, units reevaluate the need for positions that vacated through attrition. RCM incentivizes reallocation of personnel budgets to areas of need. A faculty or staff retirement or departure in one area may not necessarily lead to a hire in that area; rather, the unit could conduct a needs analysis to determine the best use of the funds that are freed by the vacancy. If the unit was not meeting its revenue targets, the attrition of faculty or staff in non-essential areas could be used as cost savings to bring the unit's revenues and expenditures more in line. Similarly, a dean or unit leader could allocate funds from a vacated position to a new area in an effort to boost research productivity or tuition revenue generation or to achieve another strategic goal for the unit.

The allocation and use of the physical plant is another area affected by the implementation of RCM. Especially at institutions with growing student populations, shortage of space can be of great concern to institutional leaders. Higher education institutions can be constrained financially and physically when trying to increase the size of the physical plant, and thus optimization of the use of existing space is essential. RCM offers a potential way to ensure more efficient use of space, as it allocates physical plant costs to the units utilizing the space, thereby compelling them to evaluate their need for the space. Through the costing models used in RCM, faculty and administrators can understand better the costs of space, and "knowledge of space costs can be used to help

ration space and curb people's appetites for space" (Ehrenberg, 2000, p. 151). What might have seemed like a free good to units under an incremental has a real and assignable cost to units under RCM's indirect cost allocation formulae (Whalen, 1996). RCM implementation can therefore lead to more efficient use of space, as units can choose to give up space they did not need in order to reduce their direct utilities costs and indirect cost allocation (Strauss, Curry, & Whalen, 1996). This can reduce the pressure on college and university administrators to find space for new and changing needs.

The implementation of RCM can result in decreased administrative overhead, with appropriate oversight by the revenue-generating units paying indirect costs to support the administrative overhead. DeHayes and Lovrinic (1994) detailed the use of activity-based costing models at Indiana University-Purdue University Indianapolis after the campus implemented RCM. According to the authors, the model used at IU was designed to improve understanding of the costs of production, help administrators identify areas needing restructuring, and evaluate the costs and benefits of undergoing such restructuring. For example, at one of the campus's professional schools, analysis showed that "more than 27 percent of the total cost of the school went to activities that generated no revenue" (DeHayes & Lovrinic, 1994, p. 90). After additional analysis, the school found that much of the 27 percent was administrative overhead, thus school leaders made the decision to consolidate the school's sixteen departments into six and reduce the costs of the dean's office (DeHayes & Lovrinic, 1994, p. 91). Under RCM, school leaders gained the knowledge necessary to make decisions to lower administrative costs, as well as the incentive and authority to do so.

Criticisms of RCM

RCM does not come without its share of perceived and actual problems. In his analysis of management trends in higher education, Birnbaum (2000) included RCM as a fad potentially "slouching toward higher education," noting that its increasing adoption in the sector should not necessarily lead one to conclude it is beneficial to higher education institutions or their missions (p. 229). McClure (2016) revisited Birnbaum's framework for management fads and concluded that while RCM could create long-term successes, the benefits of the model and other similar models are difficult to measure and therefore higher education leaders "would be wise to approach these new management ideas with appropriate caution." Writing prior to Birnbaum and McClure, Morgan (1984) stated that although "'new strategies' for resource allocation are often criticized as transitory fads," even if strategies, such as planning-program-budgeting systems and zero-based budgeting, fade or are scrapped over time, some of their lessons, such as the importance of data analysis in decision making, remain (p. 18). Morgan (1984) listed the movement of decision making close to the levels where activities are being conducted as a positive feature of RCM, but stated that governance issues can occur due to the lessened prominence of central controls. Similarly, Curry, Laws, and Strauss (2013) emphasized the important role of academic governance in both decentralization of decision making and the implementation of RCM (p. 101).

The implementation of RCM can create tensions and power struggles within institutions, especially if appropriate governance structures are not firmly in place. Newfield (2008) saw the primary tension in the post-RCM-implementation era as one between the use of financial and academic factors in institutional decision making, stating, "The university already knew how to worry about money. What was needed was

a system for explaining nonquantitative educational benefits to a deeply money-minded culture, and this is what RCM made even more difficult" (p. 172). Similarly, Chabotar (1999) stated that RCM could create fear that this type of budgeting "favors profitability over mission and program" (p. 18). El-Khawas (2002) linked the implementation of responsibility center budgeting to the growth and strengthening of administrative management of US institutions and believed that the rules of RCM models "are prudent and sensible, but one of their 'costs' is that they constrain initiative and creativity" (p. 268).

Adams (1997) described RCM as a step "in the long process by which the values and mode of rationality that govern the economic system of our society progressively derange[s] the culture and pervert[s] our social and cultural institutions" (p. 58). Fearing that RCM would undermine the study of arts and sciences, impair the shared governance of the faculty, and drive universities to make decisions with only the funding source in mind, Adams, a staunch advocate for the humanities, cautioned against RCM (Adams, 1997). Agostino (1993) pointed out that prior to the introduction of RCM at Indiana University-Bloomington in 1990, schools and the units within them freely exchanged students and credit hours; after implementation, a school and its constituent units' revenues could be threatened if another school or unit kept students insulated within the home department. Agostino (1993) likened this situation to "academic hostage-taking" (p. 24), as revenues could become a higher priority than collaboration. Bava (2001) interviewed top administrators and faculty at two private RCM institutions and found that the faculty and some of the administrators were concerned about the potential for a decline in the quality of instruction post-implementation, which created tensions between

faculty and administrators. Similarly, Class (2004) found concerns about competition among academic units for revenues when interviewing top administrators and deans at Marquette University. Kirp (2003) described competition for students after RCM implementation at the University of Southern California as "academically dubious behavior", with schools aggressively advertising their courses to students, emphasizing lower academic rigor, and attempting to force courses not typically considered part of the general education core into the option set for undergraduates in order to increase their credit hour output (p. 116). Kirp added, "At USC, the introduction of revenue center management unleashed the academic equivalent of a Hobbesian war of all against all. Gone was any commitment to supporting the common good" (Kirp, 2003, p. 118). Notably, Kirp wrote that the provost at USC made the decision to allow schools other than the liberal arts college to offer general education credits; after fewer than ten years, that decision was reversed, but not before the University's professional schools had taken control of one-third of the general education credit hours (Kirp, 2003, pp. 118-121). Interestingly, some expected results of RCM implementation, namely that it would cause a proliferation of large, lecture-style courses, did not materialize at Indiana University-Bloomington. The 1995 RCM Review Committee found that, contrary to what was expected, in the years following the implementation of RCM at IU-Bloomington, the number of large courses did not increase, but the number of smaller courses grew (RCM Review Committee, 1996).

Lasher and Greene (2001) included in their list of weaknesses of RCM its limited applicability, its complexity as compared to incremental models, the possibility of decisions becoming more budget- than mission-based, the possibility of decreased central

controls, and the difficulty of taxing units equitably. The limited applicability weakness stems from the model's emphasis on decentralization: if an organization is not large enough to function effectively with a decentralized model and functions well with centralized administration, then an implementation of RCM or similar budget models could lead to worse outcomes than maintaining the status quo. Lasher and Greene (2001) argued that the complexity of the model makes implementation difficult for many institutions; as discussed below, effective decentralized management of resources requires reliable systems, a well-trained staff, and a clear governance structure, features require attention within all universities, but require extra attention for those undergoing significant financial management changes. Other issues with RCM include the perception that the model can lead to reduction in quality through grade inflation, increased use of non-tenure track and adjunct faculty and gradual reduction in the size of the tenured faculty, increased tensions between cost and revenue centers over the allocation of resources, and the potential for reductions in non-revenue generating, but essential services (Gayle Tewarie, & White, 2003). Dubeck (1997) added that he believed RCM was incompatible with collective bargaining agreements and penalized units already running efficiently at the outset of RCM implementation, as those units would start out with lower subvention levels than their less-efficient peers.

Hoover (2011) studied the methods by which three private, R1 institutions that had successfully implemented RCM, Emory University, the University of Pennsylvania, and the University of Southern California, incentivized academic collaboration. He found that school deans and vice deans within the sampled institutions were more likely to state that RCM hampered interdisciplinary work, while those in central administration, and

especially those at higher levels of the administration, were more likely to state the opposite. More recently, through a combination of document analysis and in-person interviews, Deering and Lang (2017) studied why RCM implementations do not necessarily lead to true RCM models at adopting institutions, noting that "sometimes as little as 10 percent to as much as 50 percent of an institution's budget is allocated on the basis of [responsibility center budgeting/responsibility center management (RCB/RCM)]" (p. 94). Tellingly, the authors found that "although the track record of RCB/RCM as a means of reducing costs is not promising, all the universities in this study cited cost reduction as a reason for adopting it. However, of the 62 participants interviewed, only 22 (35 percent) reported actually realized reduced costs" (Deering & Lang, 2017, p. 96). Although Deering and Lang (2017) did not find significant evidence of cost reductions because of RCM implementation, they did find evidence of increased revenue generation, and subsequently, reduced net costs.

Barnes and Clark (2013) spoke at the 2013 National Association of College and University Business Officers' Planning and Budgeting Forum about RCM at Texas Tech University and listed collaboration and cost sharing as potential issues to be addressed under RCM. Specifically, they included "spousal accommodations, cross-department courses, shared space, joint appointments, and start-up packages" as sources of tension under RCM at Texas Tech (Barnes & Clark, 2013). In the section of their presentation devoted to "the ugly" aspects of RCM, they highlighted "high administrative turnover, state appropriation cuts, and competing resource-intense strategic initiatives" as being particularly painful for the university under RCM, and the speakers noted that the "community associated RCM with painful budget cuts," thus highlighting the need to

separate RCM as a model from other factors in the institutional environment (Barnes & Clark, 2013). Although they included critiques of RCM in their presentation, Barnes and Clark also listed the benefits of RCM and concluded their presentation with a slide that read, “Even though TTU’s version of RCM has been modified due to challenges, the overall benefit of community involvement and widespread financial understanding has been worth the process” (Barnes and Clark, 2013).

Scarborough (2009) described the decision process about whether to adopt RCM at the University of Toledo after it merged with the Medical University of Ohio in 2006. He listed the weaknesses of responsibility-based budgeting as first, that “it places more financial decision-making authority at a level in the university that is arguably the most political. The role of the dean is already very difficult; deans are relentlessly caught in the middle of often-conflicting expectations of central administrators and college faculty” (Scarborough, 2009, p. 4). Second, Scarborough saw the additional financial complexity for the roles of the dean and department chairs as potentially problematic, as those faculty administrators might not have the background knowledge and/or time to manage unit finances, and thus may need to hire additional staff, thus increasing administrative costs. Third, Scarborough wrote that implementation of RCM “invites seemingly endless conversations and arguments about revenue and indirect cost allocation methodologies” (p. 4).

Although RCM has been cited as having a silo effect on activity units, creating issues with service teaching and other inter-unit arrangements, strong central leadership and careful decisions in the planning and implementation phases can mitigate the negative effects of decentralization. Central leaders, those employed in offices meant to

serve the whole of the institution, including the president and provost's offices, have a pivotal role in regulatory arrangements between units, including the establishment of memoranda of understanding (MOU) and any ensuing dispute resolution (Lang, 1999a). Although not the only members of the organization who can influence the direction of the institution, strong central leadership, especially within the office of the president, can help ensure that units continue to work together to meet the teaching, research, and service missions of the institution. As stated emphatically by Strauss, Curry, and Whalen (1996), "The president and chief academic officer must believe! (i.e. walk it as well as talk it!)" (p. 173). If institutional leaders are prepared to make and defend the step toward RCM implementation, then the move could be beneficial to the institution. If great trepidation exists, the institution's implementation could falter; instead of moving forward in cases of trepidation within the leadership, institutions should consider continuing to explore more moderate steps toward a more secure financial future rather than pushing forward.

Wilson (2002) examined the efficiency of RCM at public universities using economic models for perfect and imperfect competition and found that RCM can create some inefficiency when implementing institutions compensate academic units for credit hours with uniform allocation rates, rather than taking into account the cost of providing those credits to students. Additionally, Wilson (2002) noted that some units are less able to compete than others, based on their size and offerings, so central administrators must consider this. While these findings may lead some to choose centralized budgeting over RCM, Wilson stated, "the choice between RCM and centralized budgeting need not be viewed as dichotomous. Instead, one can imagine a continuum of systems, distinguished

by the degree of discretion afforded central administrators…the desirability of RCM may ultimately involve tradeoffs involving both economic and political concerns" (p. 49).

RCM as a Tool

An important consideration when examining both the benefits and criticisms of RCM in higher education is the extent to which the model causes positive or negative changes. Literature about the outcomes of RCM suggest that the model is a tool which can enable improved decision making, culture change, or outcomes perceived as negative, such as competition for credit hours, decreased collegiality, and financial factors taking precedence over academic factors in decision making (Heath, 1993). In a report he submitted to President Thomas Sullivan in January 2015, just prior to the University of Vermont's full RCM implementation for fiscal year 2016, Provost David Rosowsky wrote:

> While we are all excited about the opportunities for transformation that [incentive-based budgeting] affords, I caution that IBB is not the solution to the very real and pressing challenges we face. It, in and of itself, will not reduce our expenses, create efficiencies or generate new revenue. It is not a surrogate for leadership, vision or innovation. It is a management tool that will empower our academic leaders to develop and manage their resources strategically, efficiently, and effectively as the academic units continue to elevate the quality and reputation of academic programs in order to meet the needs of our students. IBB links strategy with resources at the appropriate level. I have every confidence that it will support a positive transformation – but we all must play a role in that process. We must be willing to examine and question long-held practices and

> beliefs. We must be willing to change, to create, and to innovate. (Rosowsky, 2015, p. 13)

Similarly, David Proulx, the assistant vice president for financial planning and budgeting at the University of New Hampshire, while being interviewed by leaders at Temple University looking to plan their own RCM implementation, stated that, looking back, he would recommend a change to how the university implemented RCM: "Do not give it a fancy, grandiose name, or make it 'more important than it is.' It is only a tool. Otherwise, RCM becomes a lightning rod and is blamed for everything" (Proulx, Westney, & Estreicher, 2008). In a later interview, Wayne Schneider, director of research, planning, and institutional effectiveness at Kent State University gave a similar response when asked about challenges associated with RCM implementation, stating:

> There was some faculty pushback questioning 'are academic decisions being driven by the bottom line?' The institution must have strong academic strategic plans. That helps assure the budget is the tool that makes the plan a success, rather than the budget driving the actions. This keeps everyone focused on the goal. (Schneider & Eibeck, 2008)

Trivunovich and Setteducato (n.d.), the vice president for business and finance and CFO and associate vice president for resource management and analysis at the University of South Florida, in a presentation about USF's approach to RCM, stated that:

> RCM at USF is not a method to eliminate or impair subvented colleges; a model that produces more funds for responsibility centers; a method for colleges to independently set academic priorities; or a replacement of senior leadership for

> guiding efforts among academic and support units, establishing policies, and strategically allocating resources. (Trivunovich & Setteducato, n.d., p. 3).

Instead, leaders at the University of South Florida viewed RCM as

> simply a budget distribution methodology, one that promotes fiscal responsibility at a college and unit level; provides for transparency, predictability, and accountability; promotes investment in and alignment to [the] strategic plan; represents a shift in strategic thinking at USF; and requires a change in culture and behavior. (University of South Florida, 2016, p. 5)

Andrew Comrie, former senior vice president for academic affairs and provost at the University of Arizona, echoed this sentiment, stating, "It is crucial to understand that RCM is simply an accounting tool. In and of itself, it provides no values, no winners, no losers and no biases. What RCM does do is provide transparency for how funds flow through the University" (Comrie, 2015). In essence, although RCM is often adopted by universities looking to improve their finances and ensure long-term financial stability, often in a climate of reduced or uncertain state funding, RCM by itself does not ensure those outcomes. Instead, RCM is a tool institutions employ because their leaders believe the management strategy will help them gain a greater understanding of their activities and improve strategic decision making. Kirp (2003) cautioned that using the RCM tool absent a focus on the institutional mission, quoting a former University of Southern California dean after the institution implemented RCM as stating, "RCM is a wonderful accounting system…but if you don't have a vision, it becomes your vision" (p. 122). Thus, for Kirp and others (Adams, 1997; Agostino, 1993; Chabotar, 1999; Newfield, 2008), the dangers of RCM are realized when money takes precedence over mission.

Implementation Planning and Challenges

Lang (1999b) noted, “It has become nearly axiomatic that the first problem in planning, particularly planning that involves reallocation of resources, is convincing academic managers and faculty that there needs to be a plan” (p. 8). Implementation timelines for RCM depend upon the extent to which the institutions were prepared with effective implementation plans, including plans for adequate staffing, technical systems, governance structures, and buy-in prior to the full-implementation date, when the institutions officially move into the new model of management. When universities lack in one or more areas, their full-implementation dates can be delayed, and even if full implementation proceeds, aspects of the planned model can be held back. Agostino (1993) described this problem at Indiana University-Bloomington as causing the institution to operate for a time with the faults of both the old and new models in place, which he stated “undermine compliance with and confidence in RCM” (p. 25).

Although the implementation of RCM can lead to improved financial outcomes at adopting institutions through increased awareness and improved financial and programmatic decision making, institutions often proceed through lengthy planning processes prior to full implementation. Among other challenges, decentralization makes RCM a model that can be slow to implement, as stated by Lang (1999b), “RCM is not a ‘quick fix’ solution. It takes time and effort to install. Sometimes it requires expensive investments in management infrastructure. It is a long-term commitment to a different management style, the benefits of which may not appear immediately and in fact might not appear until a new generation of academic managers emerges” (p. 27). Those expensive investments in infrastructure, including personnel, could become costlier the

longer it takes an institution to transition to RCM, as the uncertainty surrounding the transition period could create costly inefficiencies in institutional operations. For institutions seeking to move to RCM for financial reasons, a long and slow transition could be especially detrimental. Curry, Laws, and Strauss (2013) suggested that institutions transitioning to RCM

> evaluate diligently, but implement quickly. While haste can breed failure, the search for flawlessness brings its own perils. Numerous institutions, for example, have stalled at various stages of RCM implementation because their stakeholders are "never quite ready" to make the switch. Actively manage the balance between flawlessness and momentum. (p. 104)

Similarly, Duderstadt (2007), president emeritus of the University of Michigan, on the topic of transformative change, wrote, "timing is everything, and the biggest mistake can be agonizing too long over difficult decisions, since the longer the institution remains in an unstable state, the higher the risks of a catastrophic result" (p. 64). As such, poorly planned and drawn-out implementations of RCM can create organizational confusion and increase risks, which do not help institutions meet their missions effectively. An institution that does not develop an effective implementation plan for the adoption of RCM could take longer to implement fully the new model of financial responsibility and authority and could have more problems along the way. Although a thorough planning does not necessarily lead to a smooth implementation, the absence of a thorough plan could certainly hamper positive implementation outcomes. Thorough planning could help institutions avoid what a representative from Kent State University described as the situation during their implementation: the feeling of "building the bicycle while they are

riding it" (Schneider & Eibeck, 2008). As such, institutions looking to implement RCM need to proceed relatively quickly, but thoroughly, to make positive outcomes more likely.

Rowley and Sherman (2007) formulated recommendations for decentralized public research universities seeking to implement strategic plans. They included preplanning, ensuring faculty involvement, collaboration in the planning process, mindfulness about campus culture, thoughtful choices around planning process leadership and structure, formalizing the planning process, using the budget to support the planning process, selecting good implementation strategies, and ensuring that the planning process is continuous (Rowley & Sherman, 2007, pp. 117-118). Similar to Rowley and Sherman, Morgan (1984) wrote about the challenge of successful strategic planning, stating that it depends upon "a very perceptive, and perhaps lucky, leader," the decoupling of egos and career trajectories of top administrators from the initial objectives of the plan, and continuous, systematic monitoring of the environment in which the plan will be executed (p. 17). Figure 10 reformulates the recommendations of Rowley and Sherman (2007) and applies them to RCM implementation planning. As shown in Figure 10, effective planning for RCM implementation requires five key goals, each of which have specific objectives of their own. Although the pieces listed in Figure 9 are essential for a smooth planning process, they are not a guarantee that the planning and/or implementation of RCM will go well for an institution, as many other factors can come into play, such as the reaction of the campus to the planning and implementation or significant changes in the external funding environment. Although all pieces shown in Figure 10 are vital to the success of the planning process, the flexibility of the model and its adaptability to

institutional needs results in different forms of RCM at different institutions: as the adopting institutions go through the RCM planning process, they mold their planned RCM model to meet the needs of the individual institution. These needs may change over time, so ongoing flexibility in RCM models is essential to the models' continued use and success (Curry, Laws, & Strauss, 2013).

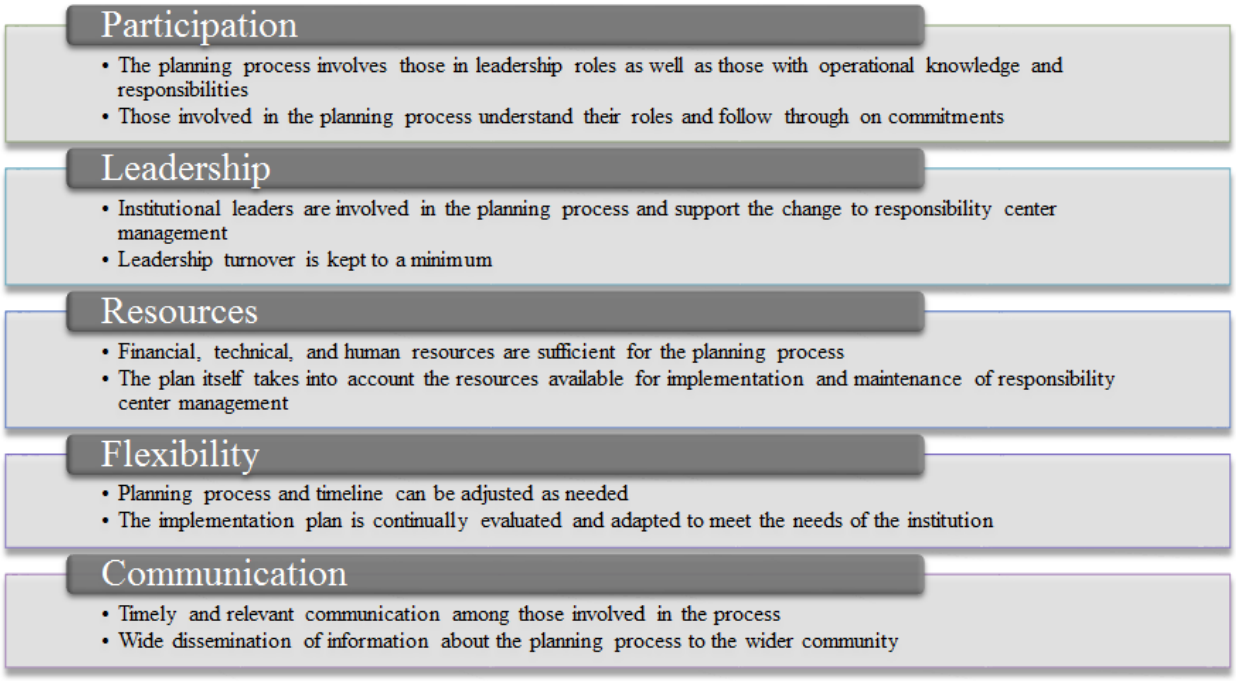

Figure 10. Essentials for a smooth RCM planning process. Adapted from Rowley and Sherman, 2007, pp. 117-118.

Curry, Laws, and Strauss (2013) recommended a five-phased approach to RCM implementation. Curry, Laws, and Strauss recognized that the implementation of RCM was a complicated process that required the input and collaboration of many within the institution. Those involved in the implementation process have many deliverables, including scoping the new model, simulating its implementation, and refining the model to meet the needs of the institution. As shown in Figure 11, the five-phased approach put

forth by Curry, Laws, and Strauss (2013) featured multi-step phases that build upon one another, with the final phase, "managing the system," focused on setting the RCM model up for long-term success through attention to maintenance and continued refinement.

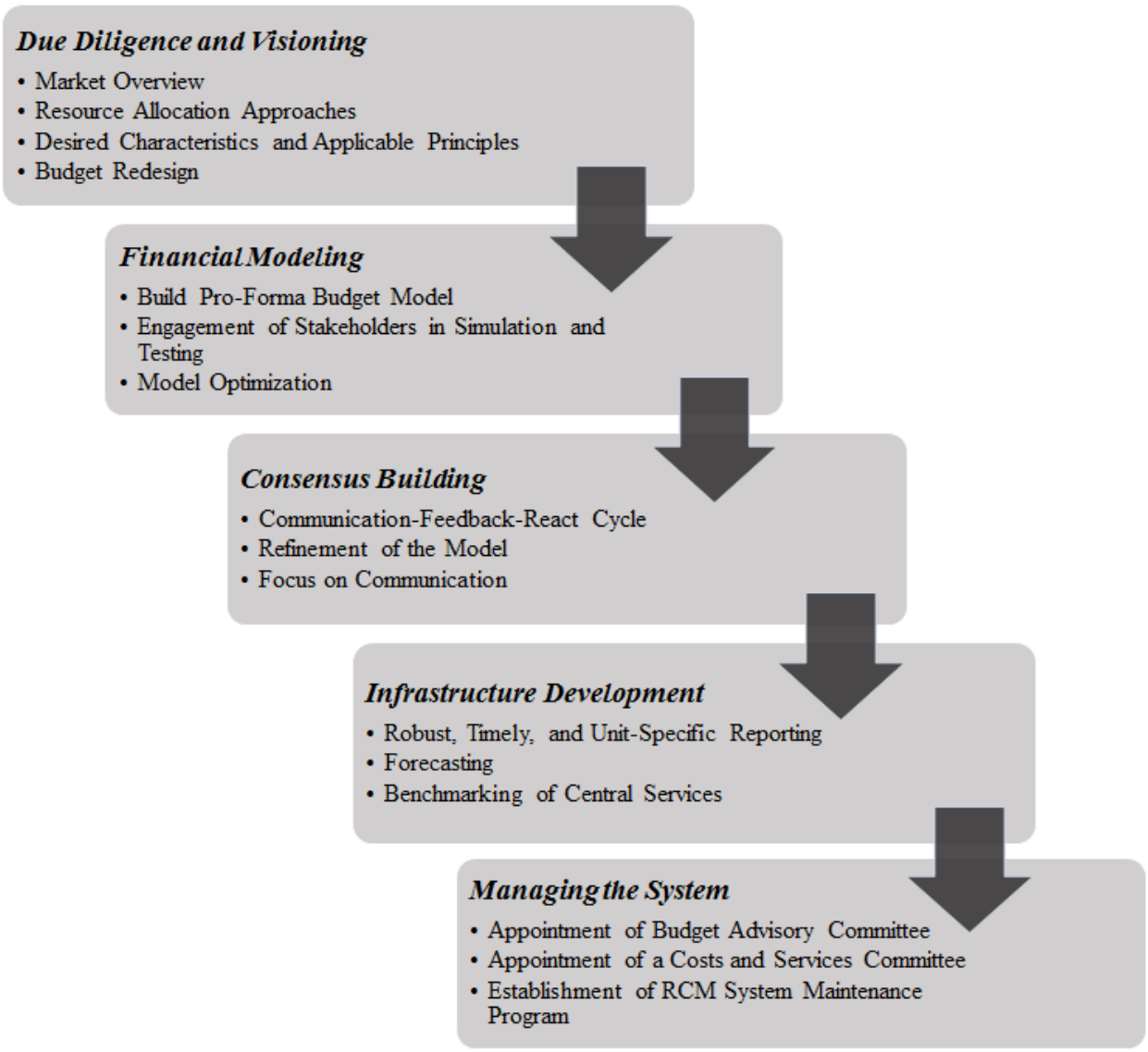

Figure 11. Five-phased approach to RCM implementation. Adapted from Curry, Laws, and Strauss, 2013, pp. 106-108.

Implementation of a RCM budget model can present challenges for higher education institutions, as the preparation for such a move usually entails, at a minimum, a review of, but can expand to require, an overhaul of existing reporting and data systems

and managerial structures. Massy (2016) lamented that the lack of dynamic and reliable data and reporting systems, often characterized by the use of "disconnected spreadsheets" led to static thinking and caused people who did not have a strong understanding of the connections between finance and academics to disengage (p. 166). Lang (2002) described the problems the University of Toronto encountered in its RCM implementation because it did not have robust financial information systems firmly established. He warned that "RCM inherently increases business risk" and therefore institutions need systems with "strong and reliable audit capability to give early warnings of poor management at the faculty level" (p. 129). Institutions contemplating RCM implementation need to ensure that the finance, human resources, and student information systems to be used (whether the current systems or new) are reliable and usable for faculty, staff, and students. If new systems are needed, the institutions need to make the system changes prior to RCM implementation and ensure that users are adequately trained in their use.

Institutions need to solidify their indirect cost allocation methodologies well in advance of implementation so that activity units have time to make changes to their current arrangements in order to improve their financial positions in the new budget model (Lang, 1999a). After interviewing administrators at private research universities that had implemented RCM, Cooper (2003) concluded that cost allocation methodologies need to be reviewed over time to ensure that they continue to meet the needs of the institution and its subunits. He listed the five areas around which institutions should focus when developing or changing their indirect cost allocation methodologies as "(a) determine the cost drivers of administrative activities, (b) create allocation pools based on cost drivers, (c) distribute costs on a consistent basis, (d) move from average to marginal

cost rules, and (e) create reasonable transition periods for change" (p. iii). On the revenue side, public institutions implementing RCM need to decide whether state appropriations will be attributed directly to activity units or held centrally as the basis for a pool of funds to be used for the purposes of subsidy of or investment in activity units. In either case, institutional leaders should determine how subsidization would be handled under RCM in their institutions and how and when decisions regarding subsidy levels would be communicated to the activity units (Strauss, Curry, & Whalen, 1996).

Chabotar (1999) cautioned administrators to "never underestimate the unfamiliarity of the campus with financial terms and concepts, which can contribute to rampant suspicion that the accountants are hiding the money" (p. 22). RCM implementation requires strong middle managers, especially with finance backgrounds, in activity units (Whalen, 1996); the adopting institutions need to assess their current staffing to determine if their employees could be trained to lead in the new model or whether the institutions will need to hire experts from outside to help bring about the necessary changes (Lang, 1999a). The University of California – Los Angeles sought to address this potential issue prior to its RCM implementation in fiscal year 1998 through widespread training:

> Making RCM work will require that staff members learn to work with the financial information needed to make more effective decisions. Institutions that have implemented RCM have not reduced or added personnel, but employees have had to significantly upgrade their skills, especially in financial analysis and accounting. So far, more than 600 UCLA employees have taken RCM accounting and financial reporting classes. (Lee, 1997)

Without a well-prepared workforce, institutions seeking to implement RCM can face difficulties making the transition to the more complicated and decentralized form of management. Where in a centralized model, an institution would need experts mostly in central offices, a decentralized model such as RCM requires experts in all units as well as in the central office, thus requiring a larger highly trained staff. Scott (2001) saw staffing as an issue for the devolution of budgeting and decision making, as she wrote, "Colleges report that fully devolved budgets require skills in managers which are not always available" (p. 256). This expanded need for highly trained employees can make RCM seem less efficient than incremental budgeting. An advantage of incremental budgeting is its relative simplicity. RCM requires more and better staff to support successful operation of the model, but institutions must weigh the benefits of RCM against the costs of increased staffing levels needed for decentralization.

Faculty involvement in the planning and implementation processes associated with the change to RCM varies from institution to institution. For example, Kirp (2003) described the opposition central leadership faced while implementing RCM at the University of Michigan, stating, "the fact that the budget scheme was imposed from the top, rather than deliberated by the faculty, angered many" (p. 125). Chabotar (1999) described three approaches to budgeting: informational, in which an institution's administration does not solicit feedback from faculty and staff; consultative, in which faculty and staff are consulted for advice that may alter decisions about the budget; and participative, in which faculty and staff are involved throughout the budget process and make recommendations on the final budget (p. 20). Agostino (1993) stated that faculty at Indiana University-Bloomington were not involved in the decision to implement RCM,

but they were consulted heavily in the planning and design processes; some of the faculty were sent to the University of Southern California, which had implemented RCM nearly ten years earlier, to learn about its functioning in the model. At the University of Kentucky, the deans expressed that "department chairs, faculty, and staff require/desire a better understanding of the model;" the proposed solution was to provide training for those constituents on higher education finance and RCM, with workshops about the specifics of University of Kentucky's adopted model once the model was finalized (Riordan, 2014). Clarity on the financial responsibilities of faculty and administrators can reduce confusion and mistrust, as different people in the institutions view their roles in financial planning differently; a shared understanding can help create greater unity in institutional financial planning (Gayle, Tewarie, & White, 2003). Hensley, Bava, and Brennan (2001) interviewed faculty and administrators at two RCM institutions and found that the faculty appreciated the flexibility and transparency associated with RCM and generally favored the decentralized decision making associated with RCM, but needed to have a voice in order to have trust in the process.

As institutions make plans to transition to a new model of financial management, institutional leaders need to consider the extent to which they will involve faculty and staff in the decision process and further need to ensure that the roles of the faculty and staff are well known at the outset of the planning and implementation processes. High-level leaders at institutions are often involved in the RCM planning process, but many operational managers can be left out of the process. This reduces the number of people involved in the process significantly, thus potentially allowing for a faster timeline, but could leave the institution's plans with gaps in operational knowledge, which could slow

the eventual implementation or limit its success. Jarvie (2002) used a grounded theory case study of the University of Lethbridge to examine the changing roles of academic deans pre- and post-implementation of RCM and found that as the decision-making role increased, so too did autonomy and accountability. Jarvie added that these changes increased the need for transparent and timely communications throughout the organization, thus highlighting the need for leadership to be attentive to the roles and knowledge of the faculty and staff in their organizations. Curry, Laws, and Strauss (2013) added that the communication essential to the change process is an ongoing need in RCM maintenance, as is broad engagement in the units, writing, "you need strong leaders to do the right things; you need strong managers to do things right" (p. 82).

Summary

RCM is a tool adopted by higher education institutions for a variety of reasons. Adopting institutions adapt their RCM models to meet their needs, which results in many different forms of RCM in higher education institutions (Zierdt, 2009). Regardless of the adaptations, RCM models have in common the practices of full attribution of direct costs and revenues, allocation of indirect costs to constituent units, and maintenance of incentives (Curry, Laws, & Strauss, 2013; Whalen, 1991). Successful implementations depend on adopting institutions' attention to resources (financial, technical, and human), wide sharing of operational procedures and implementation plans, commitment to continuous improvement, and shared understanding among institutional leaders about roles and responsibilities (Bray, 2012). This study seeks to examine the extent to which institutions adopted the practices of RCM and the extent to which they were successful in their implementations.

CHAPTER III: METHODS

Research Questions

Today's higher education environment, with rapidly rising costs, increased public scrutiny, and, for public institutions, decreased state appropriations, has led an increasing number of institutions to seek more efficient and effective financial management. One strategy has relied upon the decentralization of accountability and responsibility characteristic of RCM. The researcher sought to understand whether institutions that chose to implement RCM were successful in doing so, in order to provide potential future adopters with more information to consider before making their decisions, as implementation is not an easy road. While many institutions have attempted to implement RCM, many of them have experienced struggles and some have turned back, in full or in part, due to the difficulty of achieving a successful implementation.

This study was approved by the University of Virginia's Institutional Review Board (IRB) and the institutions represented in the study. The researcher collected a wide variety of voices and used a retrospective approach to examine the extent to which RCM led to meaningful change at implementing institutions and sought to answer the following research questions.

1. To what degree do institutions that adopt RCM successfully implement its practices?
    a. To what degree do adopting institutions attribute both direct and indirect costs to their constituent units?
    b. To what degree do adopting institutions attribute direct revenues to their constituent units?

   c. To what degree do adopting institutions decentralize responsibility?
   d. To what degree do adopting institutions maintain worthwhile incentives in their RCM models?

2. To what degree do institutions that adopt RCM achieve success in their implementations?
   a. To what degree do adopting institutions achieve shared understanding of roles and responsibilities among central administrators and responsibility center leaders?
   b. To what degree do adopting institutions have clear and widely shared implementation plans?
   c. To what degree do adopting institutions pay attention to their personnel, technical, and financial resources during and after implementation?
   d. To what degree do adopting institutions exhibit evidence of continuous improvement of their RCM models?
   e. To what degree do adopting institutions exhibit evidence of innovation and entrepreneurialism?

Research Design

The researcher used an exploratory, mixed-methods approach to address the research questions, focusing on the perceptions of individuals within institutions of higher education that have implemented RCM. Just as the individual interpretations gained in Weick's sensemaking processes help to inform the organizational interpretation, the individual experiences and opinions of employees in RCM institutions informed this study's conclusions about the extent to which adopting institutions

achieved successful implementations, as defined in Figure 4. The mixed-methods approach to the study was chosen to provide the researcher with data allowing for both quantitative and qualitative interpretations and potentially better conclusions for the study's research questions. Following a mixed-methods approach, the study merged the results from the quantitative portion of the study, consisting of closed-ended survey questions, with the qualitative portion of the study, consisting of open-ended survey questions. In this way, the quantitative and qualitative results jointly informed the conclusions of the study and provided more depth and breadth of information from which conclusions were drawn. The exploratory nature of the study was necessitated by the dearth of academic research on the subject of RCM implementation in higher education; as such, the study aimed to provide a base of knowledge on which future research can be built. The study sought to uncover perspectives and knowledge about RCM implementation that were either previously undescribed or described in a less rigorous manner, using participants from seven institutions with similar characteristics (Streb, 2009).

A continuous, retrospective approach was vital to Weick's organizational information theory; this study employed the same approach by asking participants to reflect upon their experiences in RCM institutions. Using a combination of closed- and open-ended surveys questions, this study gathered information from individuals affiliated with RCM institutions. The study sought to collect information from individuals employed primarily in administrative capacities throughout the chosen institutions, as Granovetter's theory about weak ties indicates that inclusion of a broad array of participants could contribute more information than inclusion of participants with strong

ties. The study followed the ethical guidelines enumerated by McNamara (1994), including voluntary participation, causing no harm to respondents, providing confidentiality, and, if desired, anonymity, letting the participants know of the purpose of the study, and, once completed, reporting the methods and results to the wider community (pp. 141-148).

Survey Pilot Study

Dillman, Smyth, and Christian (2014) highlighted the importance of obtaining feedback on a survey questionnaire from experts and conducting a pilot study in the mode that will be used to complete the final questionnaire, in order to assess the effectiveness of the survey instrument (p. 257). Prior to the administration of the survey for the study, the researcher engaged in a pilot study to test the usability and content of the survey instrument. The pilot study mimicked the procedures the researcher used for the real study. Participants for the pilot study were selected in the same manner as they were for the main study, as described below, and received an invitation email with a link to the survey hosted in Qualtrics, as shown in Appendix A. The content and structure of the pilot study were the same as the survey questionnaire intended for the final study, with the addition of questions about the instrument itself, as shown in the full pilot survey shown in Appendix B. Like all participants in the study, participants in the pilot study had to agree to the informed consent agreement in Appendix C before proceeding to the pilot survey. The pilot study was open for two weeks, with a reminder email sent to the invited participants after the one-week mark. Information gleaned from the pilot study was used to make minor changes to the content and structure of the planned survey instrument. Changes included moving the demographics questions from the beginning to

the end of the survey instrument, adding section headers, and adding question numbers in Qualtrics.

Data Collection

In this study, the researcher utilized a simultaneous approach to data collection. The simultaneous design allowed the researcher to collect both qualitative and quantitative data through one survey (Teddlie & Tashakkori, 2009, p. 153). Invited participants were asked to complete a survey consisting of both closed- and open-ended questions. The survey was self-administered in Qualtrics, which allowed the researcher to reach more participants during the study period. Although self-administered surveys can yield more responses that are thoughtful because participants can complete the surveys at their leisure, participants can opt not to answer some of the questions or can provide only brief responses since they are not being observed as they complete the survey (Andres, 2012). To ensure a consistent data set, the researcher made the closed-ended questions required. The open-ended questions were not required.

As shown in Appendix D, the survey was formatted to ask respondents to submit general information about their role in the institution, but did not require respondents to provide identifying information, thus allowing them to remain anonymous. The allowance for anonymity in the survey allowed respondents to respond openly and truthfully and with in-depth responses to open-ended questions, especially for those concerned that any criticisms they provided could be linked back to them. Appendix E shows how the survey questions mapped to the research questions of the study.

Invited participants for the survey received an invitation email, as shown in Appendix F, explaining the purpose of the study and providing them with a link to the

online survey. The survey was open for three weeks. Invited participants, less any individuals who wrote back to the researcher and indicated that they either did not want to participate in the study or had completed the survey, received reminder emails after the one-week and two-week marks, as shown in Appendices G and H, respectively. The researcher sent reminder emails and personalized both the invitation and reminder emails in an effort to boost response rates (Saleh & Bista, 2017). The researcher expected a relatively low overall response rate, as the invited participants had varied positions in their institutions and, for some, very high positions in their institutions. To mitigate this potential for low response, the researcher personalized both the invitation and reminder emails, which has been shown to increase response rates in survey research (Sauermann & Roach, 2012). Prior to accessing the survey, participants were required to agree to the informed consent agreement, as shown in Appendix I, and had the opportunity to save a copy of the agreement at the conclusion of the survey.

Sample

This study employed judgment and snowball sampling in an attempt to attain a large and representative sample of the population in question: individuals currently (or formerly) employed by seven public higher education institutions, classified R1 institutions according to the Carnegie classification, that implemented RCM between fiscal years 2011 and 2017 (Indiana University Center for Postsecondary Research, n.d.). For the purposes of this study, the represented institutions defined their implementation dates; the researcher found the dates on which the institutions stated they began using RCM and grouped institutions accordingly. In most implementations, the full RCM

implementation follows a side-by-side year, where the institutions operate in their pre-RCM models while modeling operations in RCM models.

The sample was limited to participants from public, R1 institutions in order to limit the sample to institutions more likely to implement RCM. Even if they choose to implement RCM, other types of institutions have different circumstances affecting the implementation because of their sector, size, and/or complexity. Additionally, as Blasdell, McPherson, and Schapiro (1993) pointed out, "Different institutional groups generally have very different experiences. Unless we recognize the degree of heterogeneity in U.S. higher education, we cannot hope to understand the factors affecting recent history and anticipate the course of the decade ahead" (p. 32). According to Lang (1999a), RCM is more likely to be helpful to "large, complex, research-intensive universities" and although smaller and non-R1 institutions could choose to implement RCM, "the return on investment in RCB/RCM might not be large enough to justify its deployment" (p. 27). Additionally, given the study's focus on early implementation outcomes, the sample was limited to institutions that implemented in the past eight fiscal years to make it more likely that the employees surveyed would have knowledge of their universities' financial models both before and after implementation of RCM. Limiting the sample to institutions that implemented within the past eight years also reduces the potential negative effects of employee turnover on the study, as the shorter period makes it more likely those employees who were in place both before and after the change are still working for the institutions. Lang (2002) pointed out that "for publicly funded institutions there may be an asymmetry between government funding and actual institutional cost structures" (p. 130). Given that private universities do not have the

added complexity of integrating state appropriations into their RCM models, this study was limited to public R1 institutions. Although this study focuses on multiple universities, Lowen (1997) took a different approach in her case study focusing on Stanford University so she could explore relationships within and outside the university. Lowen (1997) pointed out that a multiple university study does not allow for such a relationship focus, but is "helpful in identifying broad trends" (p. 12). Thus, although the experiences of employees, current and former, within the institutions represented in the sample will not be homogenous, the similarities of the institutions will allow for some conclusions about the changes brought about by RCM implementation for the group of institutions represented in the study.

Survey Participants

The represented institutions had implemented some form of RCM, often customized to meet the needs of each institution. From each institution, the researcher used judgment sampling to select an initial list of survey participants, focusing on the administrative employees of the institution most likely to have knowledge of the successes and failures associated with RCM in their institution, such as central leaders, deans, directors of budget, etc. Although not a perfect way to judge the levels at which the potential respondents stand, the researcher used respondents' titles to gauge whether they were a fit for the sample, focusing on titles at the assistant director or manager level or higher, to capture those with managerial responsibilities.

This study focused on administrators, because they "live more in the day-to-day world operating a university" and "are bombarded with budget realities and external concerns as they seek to sustain and extend the academic vitality of the campus while

buffering the faculty and students from those impingements" (Rowley & Sherman, 2007, p. 105). Levin (1991) presented a model for increasing productivity in higher education, involving input from both central administrators and the faculty, but cautioned that "this task is complicated by the governance of higher education" because "for reasons of academic freedom, responsiveness to the needs of different academic fields, and tradition, higher educational institutions have tended to separate administrative decision making from academic governance" (p. 242). Marginson and Considine (2000) described the fragmentation of university governance, noting that faculty were stretched with teaching, research, and service obligations, and that "for all its undoubted capacity in new communication, data gathering and informal networking, the new professional university management of this era has yet to succeed in drawing the average academic into its strategic perspectives and its institutional objectives" (p. 235). Although this is a critique of the professional administrator's ability and/or desire to bring faculty into the governance of modern universities, Marginson and Considine highlighted the reason for the specific focus on administrators in this study: they are the ones most involved in operational decision making in large, research institutions. Reed, Meek, and Jones (2002) linked this decoupling of faculty and the day-to-day administrative work of running a university to the "rise of managerialism" and the "incessant pressure to maximize and exploit 'academic surplus value'" (p. xxiii). Thus, although faculty may have knowledge of the implementation of RCM at their institutions, the study invitations initially only include faculty whose primary duties are administrative, such as deans and associate deans, and faculty who are listed on institutional materials as having been members of RCM planning committees for their institutions.

Participants selected through the judgment sampling were asked to invite others who may have knowledge of the RCM transition process, including faculty. In this way, the study recognized the important role faculty play in institutional governance, but also acknowledged that most faculty have other primary responsibilities that consume most of their time. This study recognized that there is a fierce debate in higher education about the best way to balance administrative management and faculty governance in higher education institutions, as scholars such as Gumport (2000) wrote that administrators are

> Positioned in an expanded role, with authority over a broad domain of organizational decision-making as well as representing the organization's purposes and priorities to the environment. This characterization warrants careful scrutiny – that they are appropriately and effectively positioned to act for the organization. (p. 78)

While the debate about the best way to govern the modern universities rages on, with authors such as Duderstadt (2004) stating that "it is my belief that the complexity of the contemporary university and the forces acting upon it have outstripped the ability of the current shared governance system of lay boards, elected faculty bodies, and inexperienced academic administrators to govern, lead, and manage" (p. 155), this study invited initially participants who are likely to operational knowledge of RCM at their institutions – academic and professional administrators – but also invited those administrators to expand participation in the study by asking them to provide names and contact information for any additional people they believed should participate, which could include faculty senators, department chairs, or other faculty with knowledge of how RCM changed the management of their institutions.

Those who were invited to participate in the survey were also asked to send to the researcher contact information for others, including faculty, whom they believed would lend valuable insight to the study, thus allowing the researcher to employ snowball sampling, another purposeful sampling technique, to reach a wider group of participants (Teddlie & Tashakkori, 2009). This snowball sampling allowed the researcher to reach a few individuals who previously held the roles selected for the study, but who have since stepped down from those roles, often to rejoin the faculty, as the initial sample of participants suggested the researcher seek input from their former colleagues. Of the 141 survey responses, seven suggested additional people to invite to the study. Ten names were suggested; seven of whom were already invited to participate and the other three were sent invitations because of the suggestions.

With the guidance of the study's conceptual framework, while striving to answer the study's research questions, and taking into account autonomy already present in institutions, as described by Deering (2015), the researcher collected data through the survey from participants at multiple levels within the selected higher education institutions. Deering (2015) used a grounded design to develop a three-factor model of internal structure to study RCM at four public universities in the United States and Canada, and found units within the universities were highly autonomous, and "the levels of unit autonomy did not seem to be impacted by interactive or hybrid governance control forms. This was unexpected because both interactive and hybrid governance control forms encourage centrally coordinated administrative influence over unit decision-making" (p. 232). High-level institution leaders potentially have more knowledge of how the planning and implementations processes for RCM proceeded, as well as impressions

of how effective the implementations proved to be. Those below the highest levels of institutional administration, who may not have been involved in the planning processes leading up to implementation of RCM, potentially have more operational knowledge of how the implementations did or did not change their units. As such, the researcher sought to gain input from voices at the middle to high levels of both the subunit and institutional levels of the selected higher education organizations.

Institutions Represented in the Study

Seven institutions were included in the study, all of which were public, R1 institutions that implemented RCM since fiscal year 2011. Four of the institutions were members of the American Association of Universities (AAU). Three were land-grant institutions. The institutions were established over a two-hundred year period. They each enrolled over 20,000 students and employed approximately 5,000 or more employees. As R1 institutions, they had the highest levels of research activity, with annual research expenditures ranging from over 100 million to over one billion dollars (Indiana University Center for Postsecondary Research, n.d.). The institutions all had large endowments, ranging from over 100 million dollars to over three billion dollars. Their annual budgets ranged from approximately one billion to over seven billion dollars, but the institutions received only 5 to 30 percent of those budgets through state appropriations. All seven institutions were ranked in the top 150 of national institutions by the 2018 edition of *U.S. News and World Report*. In this study, the institutions were assigned pseudonyms; they are represented in the results and discussion as Alpha University (AU), Beta University (BU), Eta University (EU), Iota University (IU), Kappa University (KU), Nu University (NU), and Tau University (TU). For the purposes of

grouping institutions by RCM implementation date, AU, IU, and NU were considered older implementers, having implemented in fiscal years 2011 through 2013; BU, EU, KU, and TU were considered newer implementers, having implemented RCM in fiscal year 2016 or later.

Data Analysis

As a mixed-method study, this research employed quantitative methods to analyze closed-ended questions in the survey. Weick's focus on individual as well as collective interpretations in organizational sensemaking led the researcher to focus on finding the voices of those working in the selected RCM institutions. These are voices that could be best collected through qualitative approaches, but the addition of quantitative approaches allowed for the strengthening of the conclusions of the study.

Analysis of the data involved the interpretation of multiple views of the truth around RCM. The researcher made interpretive choices as she analyzed the data collected through the survey. Data collected in the survey was analyzed in two different ways, depending upon the type of question. The closed-ended questions were quantitatively oriented; analysis focused upon similarities among groups of individuals, with the groupings determined by the responses from the general demographic characteristics. Groupings were based on the type of unit in which the respondent was employed (e.g. central or school), the level of respondent's position, and the institutional implementation age as described above (e.g. newer versus older). The positions in the survey were grouped into executive (e.g. board member, chief executive officer/president, chief financial officer/chief operating officer, dean, chief academic officer/provost, vice president/senior vice president, and vice provost/senior vice provost), senior (e.g.

associate dean/assistant dean, controller/comptroller, treasurer, assistant/associate vice president, and assistant/associate vice provost), and middle (manager, analyst, director, associate/assistant director/manager) management levels, as well as faculty. If respondents selected "other" for either their position or unit type and provided a description, the researcher attempted to place them into the defined categories. If the respondents selected "other" and did not provide a description or choose not to answer, they were left uncategorized and their responses were used only in analyses looking at the entire response sample as a whole.

In the Likert-scale, closed-ended questions, respondents were given seven options, ranging from Strongly Agree (1) to Strongly Disagree (7), with Neither Agree or Disagree (4) as the middle choice; when analyzing the data, the researcher used the numerical values for the Likert responses. The researcher conducted initial analysis of the closed-ended responses using SPSS to create descriptive statistics such as frequencies, ranges, means, medians, standard deviations, and variances.

The researcher conducted chi square tests of independence to determine if response proportions were different for different variables; however, because response categories often had fewer than five responses, the researcher followed up the chi square tests with Cramer's V to calculate effect size. The researcher used an alpha level of .05 for all tests.

Of the seven institutions represented in the study, four (IU, BU, KU, TU) had response rates of 15 percent or more and had at least 10 completed surveys; their results are described below. Dillman, Smyth, and Christian (2014) discussed the potential for non-response bias in results from studies with low response rates, as such AU, EU, and

NU were included in the overall results and analyses by position, unit, and implementer type, but because of their low response rates and low absolute responses, their profiles are not included below. When analyzing responses by position type and institution, which each had four respondent categories (executive, senior, middle, and faculty; BU, IU, KT, and TU), if the null hypothesis was rejected, the researcher followed up the chi square and Cramer's V tests with standardized residuals.

Like the closed-ended questions, analysis of the open-ended questions grouped responses by unit type, broad position level, and whether the institution represented by the participant could be classified as a newer or older implementer, relatively speaking. Additionally, the analysis looked at the responses as a whole. Using Dedoose's platform, open-ended questions in the survey were qualitative in nature and were coded heuristically, with the goal of discovering patterns in the responses (LeCompte & Presslie, 1993; Teddlie & Tashakkori, 2009). The researcher used analytic induction to look for relationships and develop typologies based on an initial scan of the open-ended responses and modifying those relationships and typologies in subsequent reviews (Teddlie & Tashakkori, 2009). In analyzing the responses to the open-ended questions, the researcher followed the steps for data analysis as described by Creswell (2014): preparing the data for analysis by organizing the responses, reading through the data, coding the data, generating themes from the coding, as well as descriptions for those themes, and interpreting the results (pp. 197-200). The researcher used a combination of inductive and a prior codes to analyze the data; a prior codes were developed from key terms in the survey and research questions, while inductive codes were developed as the researcher read through the responses. The researcher ensured validity by triangulating

the data to justify the interpretations, providing thick descriptions of the findings, providing discrepant information that runs counter to the themes, and providing information about potential researcher bias (Creswell, 2014, pp. 201-202). The researcher worked to ensure reliability by using multiple cycles of coding and checking to make sure that the code meanings stayed consistent (Creswell, 2014, p. 203).

Researcher as Instrument

The researcher was both a full-time staff member at an institution that recently implemented RCM and a full-time student in a higher education doctoral program at the same institution. The dual roles of working in and studying higher education finance gave the researcher a perspective that both helped and hindered the research in this study. The experiences of the researcher in an RCM environment allowed her to understand better the language used by the participants in their open-ended responses. While the roles allowed the researcher to apply the practical and theoretical knowledge gained through employment and studies, the immersion of the researcher in a particular type of environment could have potentially hindered her ability to interpret effectively responses from participants in different environments. Responses from participants could have been colored by the experiences of the researcher at her institution; however, the researcher sought to minimize this potential problem by utilizing both quantitative and qualitative questions in the survey. The researcher also worked to mitigate this potential for bias by using multiple cycles of coding and looking for discrepant information in the analysis of the qualitative portion of the survey while balancing the qualitative results with the quantitative results. To ensure that the analysis of the whole of the study was representative of the responses, the researcher aimed to equally weight by each portion of

the study, thus providing an additional method to minimize the potential for bias in the analysis of the qualitative responses to affect the conclusions of the study.

CHAPTER IV: RESULTS

This study endeavored to describe what administrators thought of their institutions' RCM models to explore how effectively the institutions implemented their new budget models. Using the conceptual framework shown in Figure 4 for guidance and the survey instrument shown in Appendix D, the researcher found significant variations in employee responses to questions about the implementation of RCM at their institutions. The results described below formed the basis for the conclusions drawn in the following chapter. This chapter first discusses the results of the quantitative portion of the survey, with results arranged around the research question to which each closed-ended survey question mapped, as shown in Appendix E. These quantitative data allowed the researcher to make comparisons between different groups (e.g. institution, implementer type, position of the respondent, and employing unit of the respondent). The chapter continues with descriptions of the results from the qualitative portion of the survey, organized around the study's conceptual framework for successful RCM implementation, as shown in Figure 4. The qualitative piece of the survey allowed respondents to describe in more depth the RCM implementation process at their institutions. The chapter concludes with profiles of the four institutions with response rates of 15 percent or higher, giving a picture of each institution's implementation. Taken together, the results of this study showed that respondents did not agree that the institutions in the study fully implemented RCM practices or that they moved through their implementations successfully.

Survey Responses

Surveys were sent to 669 people associated with the seven institutions represented in the study. Some institutions had more invitations depending on the extent to which they published information about their RCM planning committees and/or roles and responsibilities within their central and school units. As shown in Table 1, 21 percent of invited participants responded to the survey. The rates at each institution varied, with response rates ranging from 10 to 32 percent of invited participants. Again, these rates were not unexpected, given the positions held by the respondents, the extent to which they felt qualified to respond, and other competing priorities. The researcher worked to increase response rates using techniques studied by Sauermann and Roach (2012), such as personalization of invitation and reminder emails, allowing time between participant contacts, and changing the wording, but not the substance, of invitation and reminder emails. Such institutional variation could have occurred based on participants' interest and/or perceived knowledge of RCM at their institutions (Dillman, 2007), as several participants informed the researcher they felt they did not know enough to respond. As shown in Table 1, BU had both the largest number of invited participants (n = 142) and the highest response rate (32%). BU also had the most publicly available information about their RCM planning process on the institution's website of the seven represented institutions; whether BU's leading response rate was tied to its lead in publishing information about its RCM model is unknown. Overall, institutions grouped as the older implementers had a lower response rate (13%) than those grouped as newer implementers (27%).

Table 1

Institutional Response Rates by Implementer Type

Implementer Type	Institution	Invitations Absolute	Invitations (%)	Responses Absolute	Responses (%)	Response Rate
Older to RCM (FY11-13)	AU	81	(12%)	8	(6%)	10%
	IU	102	(15%)	18	(13%)	18%
	NU	67	(10%)	7	(5%)	10%
	Subtotal	250	(37%)	33	(23%)	13%
Newer to RCM (FY16+)	BU	142	(21%)	45	(32%)	32%
	EU	64	(10%)	9	(6%)	14%
	KU	86	(13%)	20	(14%)	23%
	TU	127	(19%)	34	(24%)	27%
	Subtotal	419	(63%)	108	(77%)	26%
	Total	669	(100%)	141	(100%)	21%

Responses

Invitations were sent to 669 individuals, classified by the researcher as 176 executives (26%), 148 senior leaders (22%), 301 middle managers (45%), and 44 faculty (7%). The responses to the survey included personnel at varying levels of the institutions represented, with strong and nearly equal representation in the submitted responses from the executive, senior, and middle management levels of institutional administrations, as shown in Table 2. Faculty were less well represented; however, faculty represented a small portion of those invited to complete the study, as they were only invited if they had strong ties to the implementation process (e.g. serving as faculty senate chair, provost or dean at the time of implementation planning, etc.). Six respondents chose not to classify their positions; they are included in Table 2, but are not included in later analyses by position type. Compared to the number of people invited in each position category, executives, senior leaders, and faculty responded at a greater rate than middle managers,

some of whom wrote in their open-ended responses that they did not feel qualified or knowledgeable enough to complete all questions.

Table 2

Frequencies of Invitations and Responses by Position

		Absolute		Relative	
Position Type	Position	Invited	Responded	Invited	Responded
Executive	Chief Academic Officer/Provost	10	4	0.01	0.03
	Chief Business Officer/Chief Financial Officer	10	11	0.01	0.08
	Chief Executive Officer/President	8	3	0.01	0.02
	Chief Operating Officer	4	-	0.01	-
	Dean	117	16	0.17	0.11
	Vice President/Senior Vice President	18	4	0.03	0.03
	Vice Provost/Senior Vice Provost	9	2	0.01	0.01
	Subtotal	176	40	0.26	0.28
Senior	Associate/Assistant Dean	102	30	0.15	0.21
	Associate/Assistant Vice President	26	9	0.04	0.06
	Associate/Assistant Vice Provost	9	2	0.01	0.01
	Comptroller/Controller	8	-	0.01	-
	Treasurer	3	-	0.00	-
	Subtotal	148	41	0.22	0.29
Middle	Analyst	109	10	0.16	0.07
	Associate or Assistant Director/Manager	29	6	0.04	0.04
	Director	85	20	0.13	0.14
	Manager	78	7	0.12	0.05
	Subtotal	301	43	0.45	0.30
Faculty	Faculty	44	11	0.07	0.08
Choose not to answer	Choose not to answer	-	6	-	0.04
	Total	669	141	1.00	1.00

In addition to classifying their positions at their institutions, respondents were asked to classify the type of unit in which they worked (Table 3), their years of employment at their institution (Table 4) and in higher education (Table 5), and whether or not they were employed at their institution prior to the implementation of RCM (Table 6). Two-thirds of responses came from participants who identified themselves as working in schools or colleges. Two-thirds of respondents had worked for 10 or more years at

their institution. A vast majority (84%) of respondents had worked in higher education for 10 or more years. A vast majority (86%) of respondents had worked at their institutions since before RCM was implemented at the institutions, which was associated with the responses to the tenure of respondents at their institutions and the relatively new implementations of RCM at all seven represented institutions.

Table 3

Frequency of Responses by Unit Type

	Frequency		
Unit Type	Absolute	Relative	%
Central	43	0.30	30
School	95	0.67	67
No response/Other	3	0.02	2
Total	141	1	100

Table 4

Frequency of Responses by Tenure at Institution

	Frequency		
Years at Institution	Absolute	Relative	%
0-4 years	16	0.11	11
5-9 years	28	0.20	20
10+ years	95	0.67	67
Choose not to answer	2	0.01	1
Total	141	1	100

Table 5

Frequency of Responses by Tenure in Higher Education

	Frequency		
Years in Higher Education	Absolute	Relative	%
0-4 years	3	0.02	2
5-9 years	18	0.13	13
10+ years	119	0.84	84
Choose not to answer	1	0.01	1
Total	141	1	100

Table 6

Frequency of Responses about Tenure at Institution versus RCM Implementation

	Frequency		
Employed by Institution before RCM?	Absolute	Relative	%
No	20	0.14	14
Yes	121	0.86	86
Total	141	1	100

Respondents were asked to identify the extent to which they were involved in the change to an RCM model at their institution and whether their institutions decided to implement RCM in response to financial constraints. As shown in Table 7, 60 percent of respondents (*n*=85) disagreed that they were involved in the decision-making process, while 32 percent (*n*=45) agreed. These responses were expected, both because the survey included people who were relatively new to the institutions and people who are not typically the institutional decision makers (i.e. those below executive and senior levels of management). In response to the question about whether their institutions decided to move to RCM in response to financial constraints, 45 percent (*n*=63) agreed, 25 percent disagreed (*n*=35), and 30 percent chose to neither agree nor disagree (*n*=43).

Table 7

Frequencies and Descriptive Statistics for RCM Characteristics

Characteristic	Response	Frequency		%	*M*	*Mdn*	*SD*	*σ*
		Absolute	Relative					
I was involved in the decision to change to an RCM model.	Strongly Agree (1)	13	0.09	9	4.8	6.0	2.1	4.5
	Agree (2)	20	0.14	14				
	Somewhat Agree (3)	12	0.09	9				
	Neither Agree or Disagree (4)	11	0.08	8				
	Somewhat Disagree (5)	9	0.06	6				
	Disagree (6)	39	0.28	28				
	Strongly Disagree (7)	37	0.26	26				
My institution decided to implement responsibility center management as a response to financial constraints.	Strongly Agree (1)	9	0.06	6	3.7	4.0	1.5	2.3
	Agree (2)	23	0.16	16				
	Somewhat Agree (3)	31	0.22	22				
	Neither Agree or Disagree (4)	43	0.30	30				
	Somewhat Disagree (5)	12	0.09	9				
	Disagree (6)	18	0.13	13				
	Strongly Disagree (7)	5	0.04	4				

As described in the methods section, the survey required all respondents to respond to the closed-ended questions, including the demographic questions at the end of the survey. Incomplete surveys were not included in the results, as several invited participants emailed the researcher to let her know that they had clicked through the survey, but decided they did not want to respond, and thus their surveys were recorded as incomplete. Respondents did not have to complete the open-ended questions; those who completed the required closed-ended questions but chose to skip one or more of the open-ended questions were counted toward the study's results. Despite not being required, the open-ended questions received high response rates, as shown in Table 8. All open-ended questions, less the final question allowing for additional comments, received responses in 70 percent or more of the completed surveys.

Table 8

Frequency of Response and Non-response to Open-ended Questions

	Response	No Response
Survey Question	Absolute (%)	Absolute (%)
In what ways do you believe the implementation of responsibility center management changed the way your institution operates?	120 (85%)	21 (15%)
In what ways did a shift in roles, responsibilities, and/or authority occur as a result of responsibility center management implementation?	112 (79%)	29 (21%)
In what ways have you or your organization experienced any positive effects of responsibility center management?	117 (83%)	24 (17%)
In what ways have you or your organization experienced any negative effects of responsibility center management?	121 (86%)	20 (14%)
What, if any, changes would you make to the responsibility center management model at your institution?	110 (78%)	31 (22%)
What would you say are the most important features of your institution's responsibility center management model?	99 (70%)	42 (30%)
What advice would you give to institutions researching responsibility center management or just beginning their planning process?	117 (83%)	24 (17%)
What do you think is the future of responsibility center management at your institution?	115 (82%)	26 (18%)
Please provide any additional comments about responsibility center management at your institution below.	43 (30%)	98 (70%)

Quantitative Results

Implementation of RCM Practices

Research question one focused on the extent to which institutions that adopt RCM successfully implement its practices. Specifically, the question sought to find the extent to which institutions attribute direct costs, indirect costs, and direct revenues to their constituent units; decentralize responsibility; and maintain worthwhile incentives in their RCM models. As shown in Appendix E, eight closed-ended survey questions asked participants to give a response to statements related to the implementation of RCM practices. Table 9 shows the responses by survey question for all respondents (N = 141). Table 10 shows the descriptive statistics for those eight survey questions. All survey questions except for two ("Most often, central executive leaders make decisions that

affect all other organizations and people in the institution" and "The units in my institution have the duty and power to make non-financial decisions that help them advance and fulfill their missions") elicited the full range of responses, from one (Strongly Agree) to seven (Strongly Disagree); the two questions listed above had ranges from one to six (Disagree), with no respondents selecting Strongly Disagree. The highest means, indicating disagreement, in the whole sample were for questions relating to bottom-up decision making (M = 4.1, SD = 1.7) and incentives for units (M = 4.3, SD = 1.6). The lowest means, indicating agreement, related to the attribution of direct costs (M = 2.1, SD = 1.2) and top-down decision making (M = 2.3, SD = 1.1).

Table 9

Responses to Survey Questions Relating to Implementation of RCM Practices

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	45 (32%)	65 (46%)	16 (11%)	7 (5%)	3 (2%)	3 (2%)	2 (1%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	10 (7%)	44 (31%)	28 (20%)	16 (11%)	22 (16%)	15 (11%)	6 (4%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	26 (18%)	50 (35%)	31 (22%)	7 (5%)	18 (13%)	8 (6%)	1 (1%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	32 (23%)	63 (45%)	27 (19%)	10 (7%)	7 (5%)	2 (1%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	5 (4%)	26 (18%)	29 (21%)	17 (12%)	33 (23%)	20 (14%)	11 (8%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	10 (7%)	45 (32%)	55 (39%)	6 (4%)	9 (6%)	13 (9%)	3 (2%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	20 (14%)	56 (40%)	48 (34%)	9 (6%)	2 (1%)	6 (4%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	2 (1%)	18 (13%)	35 (25%)	18 (13%)	34 (24%)	23 (16%)	11 (8%)

Table 10

Descriptive Statistics for Survey Questions Relating to Implementation of RCM Practices

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	141	1	7	2.1	2	1.2	1.5
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	141	1	7	3.5	3	1.7	2.8
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	141	1	7	2.8	2	1.5	2.2
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	141	1	6	2.3	2	1.1	1.3
People at all levels of my institution make decisions that affect the overall direction of the institution.	141	1	7	4.1	4	1.7	2.8
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	141	1	7	3.1	3	1.4	2.1
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	141	1	6	2.5	2	1.1	1.3
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	141	1	7	4.3	4	1.6	2.4

Implementer Type. Institutions were divided into older (FY11-13) and newer implementers (FY16+) and results were analyzed within and between those groups. Tables 11 and 12 show the responses by participants in older and newer implementing institutions, as well as the descriptive statistics, chi square, and Cramer's *V* results. There were large differences in means for questions about attribution of indirect costs (M = 3.9, SD = 1.7 for older; M = 3.3, SD = 1.6 for newer), allocation of direct revenues (M = 3.2, SD = 1.6 for older; M = 2.6, SD = 1.5 for newer), and bottom-up decision making (M = 3.4, SD = 1.6 for older; M = 4.3, SD = 1.6 for newer), only the question about bottom-up decision making yielded a significant result in chi square testing, χ^2 (6, N = 141) = 12.786, p = .047, V = .301, thus showing that respondents from the institutions that implemented RCM most recently were moderately more likely to disagree that people at

all levels of the institutions made influential decisions than respondents from institutions that were more well established in their RCM models.

Table 11

Responses to Questions about RCM Practices by Implementer Type

Survey Question	Implementer Type	Response						
		Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Older	10 (30%)	15 (45%)	5 (15%)	1 (3%)	1 (3%)	0 (0%)	1 (3%)
	Newer	35 (32%)	50 (46%)	11 (10%)	6 (6%)	2 (2%)	3 (3%)	1 (1%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Older	1 (3%)	7 (21%)	8 (24%)	5 (15%)	4 (12%)	6 (18%)	2 (6%)
	Newer	9 (8%)	37 (34%)	20 (19%)	11 (10%)	18 (17%)	9 (8%)	4 (4%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Older	3 (9%)	10 (30%)	9 (27%)	1 (3%)	8 (24%)	1 (3%)	1 (3%)
	Newer	23 (21%)	40 (37%)	22 (20%)	6 (6%)	10 (9%)	7 (6%)	0 (0%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Older	4 (12%)	12 (36%)	10 (30%)	3 (9%)	4 (12%)	0 (0%)	0 (0%)
	Newer	28 (26%)	51 (47%)	17 (16%)	7 (6%)	3 (3%)	2 (2%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	Older	1 (3%)	11 (33%)	10 (30%)	1 (3%)	6 (18%)	2 (6%)	2 (6%)
	Newer	4 (4%)	15 (14%)	19 (18%)	16 (15%)	27 (25%)	18 (17%)	9 (8%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Older	5 (15%)	7 (21%)	15 (45%)	1 (3%)	2 (6%)	2 (6%)	1 (3%)
	Newer	5 (5%)	38 (35%)	40 (37%)	5 (5%)	7 (6%)	11 (10%)	2 (2%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Older	8 (24%)	12 (36%)	9 (27%)	3 (9%)	0 (0%)	1 (3%)	0 (0%)
	Newer	12 (11%)	44 (41%)	39 (36%)	6 (6%)	2 (2%)	5 (5%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Older	0 (0%)	3 (9%)	8 (24%)	2 (6%)	11 (33%)	6 (18%)	3 (9%)
	Newer	2 (2%)	15 (14%)	27 (25%)	16 (15%)	23 (21%)	17 (16%)	8 (7%)

Table 12

Results of Chi-square Test and Descriptive Statistics for Survey Questions Relating to RCM Practices by Implementer Type

Survey Question	Implementer Type	*n*	*M*	*Mdn*	*SD*	χ^2*	df	*p*	*V*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Older	33	2.2	2.0	1.3	2.784	6	.835	.141
	Newer	108	2.1	2.0	1.2				
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Older	33	3.9	4.0	1.7	6.317	6	.389	.212
	Newer	108	3.3	3.0	1.6				
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Older	33	3.2	3.0	1.6	11.486	6	.074	.285
	Newer	108	2.6	2.0	1.5				
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Older	33	2.7	3.0	1.2	10.887	5	.054	.278
	Newer	108	2.2	2.0	1.1				

People at all levels of my institution make decisions that affect the overall direction of the institution.	Older	33	3.4	3.0	1.6	12.786	6	.047	.301
	Newer	108	4.3	4.5	1.6				
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Older	33	2.9	3.0	1.5	6.742	6	.345	.219
	Newer	108	3.1	3.0	1.4				
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Older	33	2.3	2.0	1.1	5.033	5	.412	.189
	Newer	108	2.6	2.0	1.1				
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Older	33	4.5	5.0	1.5	4.293	6	.637	.174
	Newer	108	4.2	4.0	1.6				

Note. *p<.05

Unit Type. Most respondents self-classified into unit types of central and school; the remaining chose not to answer, or identified as other. Of the 141 survey respondents, three could not be grouped as central or school because either they chose not to identify or their description of their unit in the other category did not fit into either central or school. Tables 13 and 14 show the responses by participants classified into central and school units, as well as the descriptive statistics, chi square, and Cramer's *V* test results. Though there were large differences in means for questions about attribution of indirect costs (M = 3.0, SD = 1.5 for central; M = 3.6, SD = 1.7 for school), top-down decision making (M = 2.7, SD = 2.0 for central; M = 2.1, SD = 2.0 for school), bottom-up decision making (M = 3.7, SD = 1.5 for central; M = 4.3, SD = 1.7 for school), and incentives for units (M = 3.7, SD = 1.5 for central; M = 4.5, SD = 1.5 for school), only the question about top-down decision making yielded a significant result in chi square testing, χ^2 (5, N = 138) = 14.173, p = .015, V = .320, showing that central-unit respondents were moderately more likely than school respondents to disagree that institutional decisions were primarily being made by central executive leaders.

Table 13

Responses to Questions about RCM Practices by Unit Type

Survey Question	Unit Type	Response						
		Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Central	12 (28%)	22 (51%)	5 (12%)	2 (5%)	2 (5%)	0 (0%)	0 (0%)
	School	32 (34%)	42 (44%)	10 (11%)	5 (5%)	1 (1%)	3 (3%)	2 (2%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Central	4 (9%)	18 (42%)	8 (19%)	4 (9%)	7 (16%)	0 (0%)	2 (5%)
	School	6 (6%)	26 (27%)	20 (21%)	11 (12%)	13 (14%)	15 (16%)	4 (4%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Central	10 (23%)	18 (42%)	9 (21%)	1 (2%)	4 (9%)	1 (2%)	0 (0%)
	School	16 (17%)	32 (34%)	22 (23%)	6 (6%)	12 (13%)	6 (6%)	1 (1%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Central	3 (7%)	19 (44%)	13 (30%)	4 (9%)	3 (7%)	1 (2%)	0 (0%)
	School	29 (31%)	44 (46%)	11 (12%)	6 (6%)	4 (4%)	1 (1%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	Central	1 (2%)	11 (26%)	9 (21%)	7 (16%)	10 (23%)	4 (9%)	1 (2%)
	School	4 (4%)	14 (15%)	19 (20%)	10 (11%)	22 (23%)	16 (17%)	10 (11%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Central	2 (5%)	18 (42%)	18 (42%)	1 (2%)	3 (7%)	1 (2%)	0 (0%)
	School	8 (8%)	26 (27%)	36 (38%)	4 (4%)	6 (6%)	12 (13%)	3 (3%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Central	6 (14%)	20 (47%)	12 (28%)	5 (12%)	0 (0%)	0 (0%)	0 (0%)
	School	14 (15%)	34 (36%)	36 (38%)	3 (3%)	2 (2%)	6 (6%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Central	1 (2%)	9 (21%)	13 (30%)	7 (16%)	7 (16%)	3 (7%)	3 (7%)
	School	1 (1%)	9 (9%)	22 (23%)	9 (9%)	26 (27%)	20 (21%)	8 (8%)

Table 14

Results of Chi-square Test and Descriptive Statistics for Survey Questions Relating to RCM Practices by Unit Type

Survey Question	Unit Type	*n*	*M*	*Mdn*	*SD*	χ^2*	df	*p*	*V*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Central	43	2.1	2.0	1.0	4.700	6	.583	.185
	School	95	2.1	2.0	1.3				
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Central	43	3.0	2.0	1.5	9.483	6	.148	.262
	School	95	3.6	3.0	1.7				
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Central	43	2.4	2.0	1.3	3.852	6	.697	.167
	School	95	2.9	2.0	1.5				
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Central	43	2.7	2.0	1.1	14.173	5	.015	.320
	School	95	2.1	2.0	1.1				

People at all levels of my institution make decisions that affect the overall direction of the institution.	Central	43	3.7	4.0	1.5	6.679	6	.352	.220
	School	95	4.3	5.0	1.7				
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Central	43	2.7	3.0	1.0	7.655	6	.264	.236
	School	95	3.2	3.0	1.6				
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Central	43	2.4	2.0	0.9	9.016	5	.108	.256
	School	95	2.6	2.0	1.2				
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Central	43	3.7	3.0	1.5	10.195	6	.117	.272
	School	95	4.5	5.0	1.5				

Note . 3 respondents could not be classified as central or school, thus N= 138. *p<.05

Position Type. Most respondents self-classified into positions; the remaining chose not to answer, or identified as other. Of the 141 survey respondents, six could not be grouped as into a position type because either they chose not to identify or their description of their unit was missing. Tables 15 and 16 show the responses by participants classified into position type, as well as the descriptive statistics, chi square, and Cramer's V test results. Three survey questions yielded significant p values in chi square testing; the questions about the duty and power of the units to make non-financial decisions χ^2 (15, N = 135) = 27.532, p = .025, V = .261; bottom-up decision making χ^2 (18, N = 135) = 33.217, p = .016, V = .286; and incentives for units χ^2 (18, N = 135) = 32.505, p = .019, V = .283. These results indicated that there were moderately significant differences in the ways people holding different positions responded to the statements regarding non-financial and bottom-up decision making as well as the availability of worthwhile incentives.

Table 15

Responses to Questions about RCM Practices by Position Type

Survey Question	Unit Type	Response						
		Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Executive	9 (23%)	22 (55%)	4 (10%)	1 (3%)	3 (8%)	0 (0%)	1 (3%)
	Senior	17 (41%)	18 (44%)	5 (12%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)
	Middle	12 (28%)	20 (47%)	6 (14%)	3 (7%)	0 (0%)	2 (5%)	0 (0%)
	Faculty	4 (36%)	2 (18%)	1 (9%)	2 (18%)	0 (0%)	1 (9%)	1 (9%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Executive	3 (8%)	12 (30%)	8 (20%)	6 (15%)	6 (15%)	3 (8%)	2 (5%)
	Senior	2 (5%)	15 (37%)	11 (27%)	3 (7%)	4 (10%)	3 (7%)	3 (7%)
	Middle	2 (5%)	15 (35%)	6 (14%)	5 (12%)	8 (19%)	6 (14%)	1 (2%)
	Faculty	3 (27%)	1 (9%)	1 (9%)	1 (9%)	3 (27%)	2 (18%)	0 (0%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Executive	10 (25%)	13 (33%)	10 (25%)	2 (5%)	4 (10%)	1 (3%)	0 (0%)
	Senior	6 (15%)	17 (41%)	10 (24%)	2 (5%)	3 (7%)	3 (7%)	0 (0%)
	Middle	6 (14%)	18 (42%)	6 (14%)	2 (5%)	7 (16%)	4 (9%)	0 (0%)
	Faculty	2 (18%)	1 (9%)	4 (36%)	1 (9%)	2 (18%)	0 (0%)	1 (9%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Executive	9 (23%)	14 (35%)	10 (25%)	3 (8%)	2 (5%)	2 (5%)	0 (0%)
	Senior	10 (24%)	22 (54%)	7 (17%)	1 (2%)	1 (2%)	0 (0%)	0 (0%)
	Middle	8 (19%)	20 (47%)	6 (14%)	5 (12%)	4 (9%)	0 (0%)	0 (0%)
	Faculty	4 (36%)	4 (36%)	2 (18%)	1 (9%)	0 (0%)	0 (0%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	Executive	2 (5%)	11 (28%)	9 (23%)	5 (13%)	9 (23%)	3 (8%)	1 (3%)
	Senior	0 (0%)	8 (20%)	12 (29%)	4 (10%)	11 (27%)	3 (7%)	3 (7%)
	Middle	0 (0%)	6 (14%)	7 (16%)	4 (9%)	10 (23%)	12 (28%)	4 (9%)
	Faculty	2 (18%)	0 (0%)	1 (9%)	3 (27%)	2 (18%)	1 (9%)	2 (18%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Executive	6 (15%)	13 (33%)	16 (40%)	1 (3%)	1 (3%)	3 (8%)	0 (0%)
	Senior	2 (5%)	14 (34%)	15 (37%)	1 (2%)	5 (12%)	3 (7%)	1 (2%)
	Middle	1 (2%)	13 (30%)	17 (40%)	4 (9%)	2 (5%)	5 (12%)	1 (2%)
	Faculty	1 (9%)	2 (18%)	4 (36%)	0 (0%)	1 (9%)	2 (18%)	1 (9%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Executive	10 (25%)	17 (43%)	13 (33%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Senior	7 (17%)	15 (37%)	15 (37%)	2 (5%)	0 (0%)	2 (5%)	0 (0%)
	Middle	3 (7%)	15 (35%)	14 (33%)	7 (16%)	2 (5%)	2 (5%)	0 (0%)
	Faculty	0 (0%)	4 (36%)	5 (45%)	0 (0%)	0 (0%)	2 (18%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Executive	1 (3%)	12 (30%)	8 (20%)	5 (13%)	5 (13%)	4 (10%)	5 (13%)
	Senior	0 (0%)	2 (5%)	12 (29%)	6 (15%)	12 (29%)	7 (17%)	2 (5%)
	Middle	0 (0%)	3 (7%)	10 (23%)	5 (12%)	13 (30%)	11 (26%)	1 (2%)
	Faculty	1 (9%)	1 (9%)	2 (18%)	0 (0%)	4 (36%)	1 (9%)	2 (18%)

Table 16

Results of Chi-square Test and Descriptive Statistics for Survey Questions Relating to RCM Practices by Position Type

Survey Question	Unit Type	*n*	*M*	*Mdn*	*SD*	χ^{2}*	df	*p*	*V*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Executive	40	2.3	2.0	1.3	28.784	18	.051	.267
	Senior	41	1.8	2.0	0.8				
	Middle	43	2.2	2.0	1.2				
	Faculty	11	2.9	2.0	2.1				
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Executive	40	3.4	3.0	1.6	18.178	18	.444	.212
	Senior	41	3.3	3.0	1.7				
	Middle	43	3.6	3.0	1.7				
	Faculty	11	3.5	4.0	2.0				
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Executive	40	2.5	2.0	1.3	23.310	18	.179	.240
	Senior	41	2.7	2.0	1.4				
	Middle	43	3.0	2.0	1.6				
	Faculty	11	3.4	3.0	1.8				
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Executive	40	2.5	2.0	1.3	14.251	15	.507	.188
	Senior	41	2.0	2.0	0.9				
	Middle	43	2.5	2.0	1.2				
	Faculty	11	2.0	2.0	1.0				
People at all levels of my institution make decisions that affect the overall direction of the institution.	Executive	40	3.5	3.0	1.5	33.217	18	.016	.286
	Senior	41	4.0	4.0	1.5				
	Middle	43	4.6	5.0	1.6				
	Faculty	11	4.3	4.0	2.1				
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Executive	40	2.7	3.0	1.3	17.272	18	.504	.207
	Senior	41	3.1	3.0	1.5				
	Middle	43	3.3	3.0	1.4				
	Faculty	11	3.7	3.0	2.0				
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Executive	40	2.1	2.0	0.8	27.532	15	.025	.261
	Senior	41	2.5	2.0	1.1				
	Middle	43	2.9	3.0	1.2				
	Faculty	11	3.2	3.0	1.5				
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Executive	40	3.8	3.0	1.8	32.505	18	.019	.283
	Senior	41	4.4	5.0	1.3				
	Middle	43	4.5	5.0	1.4				
	Faculty	11	4.5	5.0	2.0				

Note . 6 respondents could not be classified by position, thus $N = 135$. $p<.05$

The researcher used standardized residuals to analyze further the results by position type for the three questions that yielded significant *p* values in chi square tests, as described

above. As shown in Table 17, middle managers disagreed more often than expected and faculty strongly agreed more than expected that people at all levels of their institutions made decisions that affected the overall direction of their institutions. Middle managers neither agreed nor disagreed and faculty disagreed more often than expected that units within their institutions had the duty and power to make non-financial decisions. Executives agreed and faculty strongly agreed more than expected that their institutions had clear and worthwhile incentives for units that practiced sound decision making.

Table 17

Standardized Residuals for Significant Chi Square Results about RCM Practices by Position Type

Survey Question	Response	Position Type			
		Executive	Senior	Middle	Faculty
People at all levels of my institution make decisions that affect the overall direction of the institution.	Strongly Agree (1)	.7	-1.1	-1.1	**2.9**
	Agree (2)	1.3	.1	-.7	-1.4
	Somewhat Agree (3)	.1	1.1	-.7	-.9
	Neither Agree nor Disagree (4)	.1	-.4	-.5	1.5
	Somewhat Disagree (5)	-.2	.4	-.1	-.4
	Disagree (6)	-1.1	-1.2	**2.4**	-.4
	Strongly Disagree (7)	-1.1	.0	.5	1.3
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Strongly Agree (1)	1.7	.4	-1.3	-1.3
	Agree (2)	.5	-.1	-.3	-.1
	Somewhat Agree (3)	-.2	.2	-.3	.6
	Neither Agree nor Disagree (4)	-1.6	-.4	**2.4**	-.9
	Somewhat Disagree (5)	-.8	-.8	1.7	-.4
	Disagree (6)	-1.3	.1	.1	**2.2**
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Strongly Agree (1)	.5	-.8	-.8	2.1
	Agree (2)	**2.9**	-1.5	-1.1	-.4
	Somewhat Agree (3)	-.5	.7	-.1	-.4
	Neither Agree nor Disagree (4)	.1	.5	.0	-1.1
	Somewhat Disagree (5)	-1.6	.5	.7	.7
	Disagree (6)	-1.1	.0	1.4	-.6
	Strongly Disagree (7)	1.2	-.6	-1.2	1.3

Note . Standardized residuals in bold are those that exceed +/- 2.

Successful RCM Implementation

Research question two focused on the extent to which institutions that adopt RCM achieve success in their implementations. Specifically, the question sought to find the

extent to which institutions achieved shared understanding of roles and responsibilities among central administrators and responsibility center leaders; had clear and widely shared implementation plans; paid attention to their personnel, technical, and financial resources during and after implementation; and exhibited evidence of continuous improvement of their RCM models. As shown in Appendix E, 21 closed-ended survey questions related to the successful implementation of RCM. Table 18 shows the responses by survey question for all respondents (N = 141). Table 19 shows the descriptive statistics for those 21 survey questions. All survey questions except for three ("Central leaders at my institution were supportive of the change to responsibility center management", "School/college leaders at my institution were supportive of the change to responsibility center management", and "My institution provides ample training for employees at all levels of the institution") elicited the full range of responses, from one (Strongly Agree) to seven (Strongly Disagree); the former two questions listed above had ranges from one to six (Disagree), with no respondents selecting Strongly Disagree, while the last question received no responses of Strongly Agree and had a range of two to seven. The highest means in the whole sample were for questions relating to the provision of training for employees (M = 4.6, SD = 1.6) and the existence of and operation in accordance with an operational manual and procedures (M = 4.3, SD = 1.7). The lowest means related to the communication of the change to RCM to the university community (M = 2.3, SD = 1.2) and the efforts to increase the diversity of institutional funding sources (M = 2.6, SD = 1.3).

Table 18

Responses to Survey Questions Relating to Successful Implementation of RCM

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	6 (4%)	39 (28%)	30 (21%)	21 (15%)	24 (17%)	8 (6%)	13 (9%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	10 (7%)	36 (26%)	43 (30%)	13 (9%)	23 (16%)	13 (9%)	3 (2%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	7 (5%)	50 (35%)	42 (30%)	15 (11%)	15 (11%)	10 (7%)	2 (1%)
Central leaders at my institution were supportive of the change to responsibility center management.	52 (37%)	58 (41%)	18 (13%)	9 (6%)	3 (2%)	1 (1%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	9 (6%)	30 (21%)	51 (36%)	20 (14%)	22 (16%)	9 (6%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	13 (9%)	35 (25%)	39 (28%)	13 (9%)	20 (14%)	15 (11%)	6 (4%)
My institution implemented responsibility center management in line with its strategy and timeline.	10 (7%)	47 (33%)	27 (19%)	16 (11%)	23 (16%)	11 (8%)	7 (5%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	6 (4%)	18 (13%)	29 (21%)	21 (15%)	29 (21%)	21 (15%)	17 (12%)
The university community was informed about the change to responsibility center management and its implications.	35 (25%)	60 (43%)	30 (21%)	8 (6%)	4 (3%)	3 (2%)	1 (1%)
My institution provides ample training for employees at all levels of the institution.	0 (0%)	17 (12%)	23 (16%)	22 (16%)	27 (19%)	38 (27%)	14 (10%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	7 (5%)	30 (21%)	29 (21%)	20 (14%)	21 (15%)	24 (17%)	10 (7%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	7 (5%)	24 (17%)	23 (16%)	19 (13%)	33 (23%)	21 (15%)	14 (10%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	8 (6%)	23 (16%)	33 (23%)	25 (18%)	19 (13%)	20 (14%)	13 (9%)
My institution's version of responsibility center management was adapted to meet institutional needs.	17 (12%)	53 (38%)	33 (23%)	12 (9%)	12 (9%)	10 (7%)	4 (3%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	9 (6%)	33 (23%)	45 (32%)	25 (18%)	14 (10%)	10 (7%)	5 (4%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	7 (5%)	22 (16%)	47 (33%)	23 (16%)	24 (17%)	16 (11%)	2 (1%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	6 (4%)	34 (24%)	42 (30%)	33 (23%)	12 (9%)	11 (8%)	3 (2%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	26 (18%)	52 (37%)	37 (26%)	17 (12%)	3 (2%)	5 (4%)	1 (1%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	1 (1%)	24 (17%)	39 (28%)	24 (17%)	27 (19%)	14 (10%)	12 (9%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	17 (12%)	46 (33%)	40 (28%)	16 (11%)	14 (10%)	5 (4%)	3 (2%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	4 (3%)	28 (20%)	29 (21%)	34 (24%)	25 (18%)	17 (12%)	4 (3%)

Table 19

Descriptive Statistics for Survey Questions Relating to the Successful Implementation of RCM

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
My institution successfully implemented its version of responsibility center management.	141	1	7	3.7	3.0	1.7	2.8
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	141	1	7	3.4	3.0	1.5	2.3
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	141	1	7	3.1	3.0	1.4	1.9
Central leaders at my institution were supportive of the change to responsibility center management.	141	1	6	2.0	2.0	1.0	1.1
School/college leaders at my institution were supportive of the change to responsibility center management.	141	1	6	3.3	3.0	1.3	1.7
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	141	1	7	3.4	3.0	1.7	2.7
My institution implemented responsibility center management in line with its strategy and timeline.	141	1	7	3.4	3.0	1.7	2.7
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	141	1	7	4.3	4.0	1.7	2.9
The university community was informed about the change to responsibility center management and its implications.	141	1	7	2.3	2.0	1.2	1.4
My institution provides ample training for employees at all levels of the institution.	141	2	7	4.6	5.0	1.6	2.4
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	141	1	7	3.9	4.0	1.7	3.0
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	141	1	7	4.2	4.0	1.7	3.0
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	141	1	7	4.0	4.0	1.7	2.9
My institution's version of responsibility center management was adapted to meet institutional needs.	141	1	7	3.0	3.0	1.5	2.4
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	141	1	7	3.4	3.0	1.5	2.1
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	141	1	7	3.7	3.0	1.4	2.0
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	141	1	7	3.4	3.0	1.4	1.9
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	141	1	7	2.6	2.0	1.3	1.6
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	141	1	7	4.0	4.0	1.5	2.4
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	141	1	7	2.9	3.0	1.4	2.0
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	141	1	7	3.8	4.0	1.5	2.2

Implementer Type. Institutions were divided into older (FY11-13) and newer implementers (FY16+) and results were analyzed within and between those groups. Table 20 shows the responses by participants in older and newer implementing institutions. Table 21 shows the descriptive statistics, chi square, and Cramer's *V* results. Five statements yielded significant results. Respondents from institutions that implemented RCM most recently were much more likely than respondents from institutions with slightly longer RCM tenure to disagree that their institutions successfully implemented RCM, χ^2 (6, N = 141) = 24.165, $p < .001$, $V = .414$; moderately more likely to disagree that their institutions had clear operational manuals and procedures and were operating in accordance with both, χ^2 (6, N = 141) = 16.942, $p = .009$, $V = .347$; moderately more likely to disagree that leaders work to make changes if aspects of the RCM models do not meet the needs of the institutions, χ^2 (6, N = 141) = 14.173, $p = .028$, $V = .317$; and moderately more likely to disagree that their academic and central managerial leaders effectively work together to steer their institutions to meet new and changing demands, χ^2 (6, N = 141) = 12.059, $p = .061$, $V = .292$. The statement regarding whether respondents felt the university community was informed about the change to RCM and its implications yielded significant results, χ^2 (6, N = 141) = 14.360, $p = .026$, $V = .319$; however, the differences between the older and newer implementers affected the spread of the responses, not the means (M = 2.3) or medians (Mdn = 2), indicating that respondents may not be more likely to agree or disagree about whether the university community was informed, but they do respond differently based on the amount of time their institutions have been operating within an RCM model.

Table 20

Responses to Survey Questions Relating to Successful RCM Implementation by Implementer Type

Survey Question	Impl Type	Response						
		Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	Old	1 (3%)	10 (30%)	16 (48%)	1 (3%)	2 (6%)	2 (6%)	1 (3%)
	New	5 (5%)	29 (27%)	14 (13%)	20 (19%)	22 (20%)	6 (6%)	12 (11%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Old	3 (9%)	9 (27%)	12 (36%)	5 (15%)	3 (9%)	1 (3%)	0 (0%)
	New	7 (6%)	27 (25%)	31 (29%)	8 (7%)	20 (19%)	12 (11%)	3 (3%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Old	4 (12%)	13 (39%)	10 (30%)	1 (3%)	4 (12%)	1 (3%)	0 (0%)
	New	3 (3%)	37 (34%)	32 (30%)	14 (13%)	11 (10%)	9 (8%)	2 (2%)
Central leaders at my institution were supportive of the change to responsibility center management.	Old	18 (55%)	11 (33%)	2 (6%)	2 (6%)	0 (0%)	0 (0%)	0 (0%)
	New	34 (31%)	47 (44%)	16 (15%)	7 (6%)	3 (3%)	1 (1%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	Old	2 (6%)	9 (27%)	8 (24%)	5 (15%)	7 (21%)	2 (6%)	0 (0%)
	New	7 (6%)	21 (19%)	43 (40%)	15 (14%)	15 (14%)	7 (6%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Old	2 (6%)	9 (27%)	9 (27%)	6 (18%)	3 (9%)	4 (12%)	0 (0%)
	New	11 (10%)	26 (24%)	30 (28%)	7 (6%)	17 (16%)	11 (10%)	6 (6%)
My institution implemented responsibility center management in line with its strategy and timeline.	Old	1 (3%)	16 (48%)	5 (15%)	5 (15%)	4 (12%)	2 (6%)	0 (0%)
	New	9 (8%)	31 (29%)	22 (20%)	11 (10%)	19 (18%)	9 (8%)	7 (6%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Old	3 (9%)	7 (21%)	9 (27%)	2 (6%)	10 (30%)	1 (3%)	1 (3%)
	New	3 (3%)	11 (10%)	20 (19%)	19 (18%)	19 (18%)	20 (19%)	16 (15%)
The university community was informed about the change to responsibility center management and its implications.	Old	9 (27%)	12 (36%)	5 (15%)	6 (18%)	1 (3%)	0 (0%)	0 (0%)
	New	26 (24%)	48 (44%)	25 (23%)	2 (2%)	3 (3%)	3 (3%)	1 (1%)
My institution provides ample training for employees at all levels of the institution.	Old	0 (0%)	6 (18%)	7 (21%)	6 (18%)	5 (15%)	6 (18%)	3 (9%)
	New	0 (0%)	11 (10%)	16 (15%)	16 (15%)	22 (20%)	32 (30%)	11 (10%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Old	1 (3%)	7 (21%)	6 (18%)	6 (18%)	5 (15%)	6 (18%)	2 (6%)
	New	6 (6%)	23 (21%)	23 (21%)	14 (13%)	16 (15%)	18 (17%)	8 (7%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Old	2 (6%)	5 (15%)	9 (27%)	2 (6%)	8 (24%)	3 (9%)	4 (12%)
	New	5 (5%)	19 (18%)	14 (13%)	17 (16%)	25 (23%)	18 (17%)	10 (9%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Old	1 (3%)	4 (12%)	12 (36%)	5 (15%)	4 (12%)	5 (15%)	2 (6%)
	New	7 (6%)	19 (18%)	21 (19%)	20 (19%)	15 (14%)	15 (14%)	11 (10%)
My institution's version of responsibility center management was adapted to meet institutional needs.	Old	3 (9%)	15 (45%)	8 (24%)	3 (9%)	2 (6%)	2 (6%)	0 (0%)
	New	14 (13%)	38 (35%)	25 (23%)	9 (8%)	10 (9%)	8 (7%)	4 (4%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Old	2 (6%)	9 (27%)	17 (52%)	0 (0%)	3 (9%)	1 (3%)	1 (3%)
	New	7 (6%)	24 (22%)	28 (26%)	25 (23%)	11 (10%)	9 (8%)	4 (4%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Old	3 (9%)	3 (9%)	15 (45%)	2 (6%)	8 (24%)	1 (3%)	1 (3%)
	New	4 (4%)	19 (18%)	32 (30%)	21 (19%)	16 (15%)	15 (14%)	1 (1%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Old	1 (3%)	9 (27%)	10 (30%)	7 (21%)	2 (6%)	2 (6%)	2 (6%)
	New	5 (5%)	25 (23%)	32 (30%)	26 (24%)	10 (9%)	9 (8%)	1 (1%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Old	5 (15%)	17 (52%)	5 (15%)	5 (15%)	0 (0%)	1 (3%)	0 (0%)
	New	21 (19%)	35 (32%)	32 (30%)	12 (11%)	3 (3%)	4 (4%)	1 (1%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Old	0 (0%)	6 (18%)	11 (33%)	6 (18%)	8 (24%)	1 (3%)	1 (3%)
	New	1 (1%)	18 (17%)	28 (26%)	18 (17%)	19 (18%)	13 (12%)	11 (10%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Old	5 (15%)	13 (39%)	10 (30%)	2 (6%)	2 (6%)	1 (3%)	0 (0%)
	New	12 (11%)	33 (31%)	30 (28%)	14 (13%)	12 (11%)	4 (4%)	3 (3%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Old	1 (3%)	7 (21%)	9 (27%)	9 (27%)	4 (12%)	3 (9%)	0 (0%)
	New	3 (3%)	21 (19%)	20 (19%)	25 (23%)	21 (19%)	14 (13%)	4 (4%)

Table 21

Chi-square Test and Descriptive Statistics for Questions Relating to Successful RCM Implementation by Implementer Type

Survey Question	Impl Type	*n*	*M*	*Mdn*	*SD*	χ^2*	df	*p*	*V*
My institution successfully implemented its version of responsibility center management.	Old	33	3.1	3.0	1.3	24.165	6	< .001	.414
	New	108	3.8	4.0	1.7				
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Old	33	3.0	3.0	1.2	6.508	6	.369	.215
	New	108	3.5	3.0	1.6				
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Old	33	2.7	2.0	1.3	8.683	6	.192	.248
	New	108	3.3	3.0	1.4				
Central leaders at my institution were supportive of the change to responsibility center management.	Old	33	1.6	1.0	0.9	7.030	5	.218	.223
	New	108	2.1	2.0	1.1				
School/college leaders at my institution were supportive of the change to responsibility center management.	Old	33	3.4	3.0	1.4	3.334	5	.649	.154
	New	108	3.3	3.0	1.3				
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Old	33	3.3	3.0	1.5	7.036	6	.317	.223
	New	108	3.5	3.0	1.7				
My institution implemented responsibility center management in line with its strategy and timeline.	Old	33	3.0	2.0	1.4	7.648	6	.265	.233
	New	108	3.5	3.0	1.7				
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Old	33	3.5	3.0	1.6	16.942	6	.009	.347
	New	108	4.5	5.0	1.7				
The university community was informed about the change to responsibility center management and its implications.	Old	33	2.3	2.0	1.2	14.360	6	.026	.319
	New	108	2.3	2.0	1.2				
My institution provides ample training for employees at all levels of the institution.	Old	33	4.2	4.0	1.6	3.778	5	.582	.164
	New	108	4.8	5.0	1.5				
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Old	33	4.0	4.0	1.7	1.030	6	.984	.085
	New	108	3.9	4.0	1.8				
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Old	33	4.0	4.0	1.8	6.319	6	.388	.212
	New	108	4.2	4.0	1.7				
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Old	33	3.9	3.0	1.6	4.801	5	.570	.185
	New	108	4.0	4.0	1.8				
My institution's version of responsibility center management was adapted to meet institutional needs.	Old	33	2.8	2.0	1.3	2.644	6	.852	.137
	New	108	3.0	3.0	1.6				
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Old	33	3.0	3.0	1.3	14.173	6	.028	.317
	New	108	3.5	3.0	1.5				
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Old	33	3.5	3.0	1.4	12.059	6	.061	.292
	New	108	3.7	3.0	1.4				
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Old	33	3.4	3.0	1.5	4.026	6	.673	.169
	New	108	3.4	3.0	1.3				
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Old	33	2.4	2.0	1.1	6.371	6	.383	.213
	New	108	2.6	2.0	1.3				

My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Old	33	3.7	3.0	1.3	5.044	6	.538	.189
	New	108	4.1	4.0	1.6				
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Old	33	2.6	2.0	1.4	3.664	6	.722	.161
	New	108	3.0	3.0	1.5				
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Old	33	3.5	3.0	1.3	3.467	6	.748	.157
	New	108	3.9	4.0	1.5				

Note . *p<.05

Unit Type. Most respondents self-classified into unit types of central and school; the remaining chose not to answer or identified as other. Of the 141 survey respondents, three could not be grouped as central or school because either they chose not to identify or their description of their unit in the other category did not fit into either central or school. Table 22 shows the responses by participants classified into central and school units. Table 23 shows the descriptive statistics, chi square, and Cramer's *V* test results. Both central (*M* = 1.9, *SD* = 0.9) and school (*M* = 2.0, *SD* = 1.1) respondents agreed that central leaders were supportive of the change to RCM. Seven of the 21 questions relating to successful RCM implementation had significant *p* values in chi square testing when comparing responses between central and school groups. Those questions included whether the institution successfully implemented RCM, χ^2 (6, N = 138) = 23.842, *p* = .001, *V* = .416; whether institutions implemented RCM in accordance with their strategy and timeline, χ^2 (6, N = 138) = 17.001, *p* = .009, *V* = .351; the existence of and operation in accordance with an operational manual and procedures, χ^2 (6, N = 138) = 13.333, *p* = .041, *V* = .308; whether the university community was informed about the change to RCM, χ^2 (6, N = 138) = 14.055, *p* = .029, *V* = .319; the provision of training for all employees, χ^2 (5, N = 138) = 12.293, *p* = .031, *V* = .298; whether the versions of RCM were adapted to meet institutional needs, χ^2 (6, N = 138) = 14.412, *p* = .025, *V* = .323; and whether leaders work together to make changes to the model as needed, χ^2 (6, N =

138) = 12.985, p = .043, V = .307. These significant results indicated that central leaders, as compared to school leaders, were much more likely to agree that their institutions successfully implemented RCM, as highlighted by multiple responses in the open-ended portion of the survey, including one school executive who wrote that his/her institution experienced, “A very poor implementation of a flawed RCM model [that] is causing a lot of problems. To be clear, the problems don't stem from the principles of RCM per se but rather from a flawed implementation.” Another school executive added, “I think it could be positive if implemented properly, but I can not think of a single positive result of RCM since its implementation.” Mid-level school leaders agreed, writing:

> I think it was the right decision to make, just very poor implementation. They needed to do it in stages to allow us to understand the new way of thinking and giving us the time needed to adapt to this new way of thinking and gain the skills needed in order to manage this change successfully.

And:

> I truly embrace the concepts and think that, given better implementation, RCM is a strong operating model. My hope is that, with time, my institution can work through the problems with the poor roll out. Hopefully, that will happen before we are totally out of money.

Central leaders, as compared to school leaders, were moderately more likely to agree that their institutions implemented RCM in line with their strategies and timelines, that their institutions have and operate in accordance with clear operational manuals and procedures, that their university communities were informed about the change to RCM and its implications, that their institutions provide ample training for all employees, that

their institutions have sufficient resources to operate their RCM models effectively, that their RCM models were adapted to meet institutional needs, and that leaders work to make changes to the RCM model if aspects do not meet the needs of the institution.

Table 22

Responses to Questions about Successful RCM Implementation by Unit Type

Survey Question	Unit Type	Response						
		Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	Central	3 (7%)	22 (51%)	8 (19%)	5 (12%)	5 (12%)	0 (0%)	0 (0%)
	School	3 (3%)	17 (18%)	19 (20%)	16 (17%)	19 (20%)	8 (8%)	13 (14%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Central	6 (14%)	10 (23%)	14 (33%)	3 (7%)	6 (14%)	3 (7%)	1 (2%)
	School	4 (4%)	25 (26%)	28 (29%)	10 (11%)	16 (17%)	10 (11%)	2 (2%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Central	2 (5%)	16 (37%)	15 (35%)	3 (7%)	5 (12%)	2 (5%)	0 (0%)
	School	5 (5%)	32 (34%)	27 (28%)	11 (12%)	10 (11%)	8 (8%)	2 (2%)
Central leaders at my institution were supportive of the change to responsibility center management.	Central	15 (35%)	21 (49%)	4 (9%)	3 (7%)	0 (0%)	0 (0%)	0 (0%)
	School	37 (39%)	36 (38%)	13 (14%)	6 (6%)	2 (2%)	1 (1%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	Central	1 (2%)	10 (23%)	17 (40%)	3 (7%)	9 (21%)	3 (7%)	0 (0%)
	School	8 (8%)	20 (21%)	32 (34%)	17 (18%)	12 (13%)	6 (6%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Central	6 (14%)	12 (28%)	13 (30%)	5 (12%)	3 (7%)	4 (9%)	0 (0%)
	School	7 (7%)	22 (23%)	26 (27%)	7 (7%)	16 (17%)	11 (12%)	6 (6%)
My institution implemented responsibility center management in line with its strategy and timeline.	Central	8 (19%)	14 (33%)	9 (21%)	5 (12%)	6 (14%)	1 (2%)	0 (0%)
	School	2 (2%)	31 (33%)	18 (19%)	11 (12%)	16 (17%)	10 (11%)	7 (7%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Central	2 (5%)	5 (12%)	12 (28%)	11 (26%)	8 (19%)	4 (9%)	1 (2%)
	School	4 (4%)	13 (14%)	17 (18%)	9 (9%)	20 (21%)	16 (17%)	16 (17%)
The university community was informed about the change to responsibility center management and its implications.	Central	15 (35%)	23 (53%)	3 (7%)	1 (2%)	1 (2%)	0 (0%)	0 (0%)
	School	19 (20%)	35 (37%)	27 (28%)	7 (7%)	3 (3%)	3 (3%)	1 (1%)
My institution provides ample training for employees at all levels of the institution.	Central	0 (0%)	4 (9%)	11 (26%)	9 (21%)	11 (26%)	6 (14%)	2 (5%)
	School	0 (0%)	13 (14%)	11 (12%)	13 (14%)	15 (16%)	31 (33%)	12 (13%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Central	5 (12%)	9 (21%)	8 (19%)	6 (14%)	9 (21%)	5 (12%)	1 (2%)
	School	2 (2%)	21 (22%)	19 (20%)	14 (15%)	11 (12%)	19 (20%)	9 (9%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Central	4 (9%)	8 (19%)	5 (12%)	8 (19%)	14 (33%)	3 (7%)	1 (2%)
	School	3 (3%)	16 (17%)	17 (18%)	10 (11%)	19 (20%)	17 (18%)	13 (14%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Central	4 (9%)	11 (26%)	10 (23%)	9 (21%)	3 (7%)	4 (9%)	2 (5%)
	School	4 (4%)	12 (13%)	22 (23%)	15 (16%)	15 (16%)	16 (17%)	11 (12%)
My institution's version of responsibility center management was adapted to meet institutional needs.	Central	10 (23%)	20 (47%)	7 (16%)	1 (2%)	3 (7%)	2 (5%)	0 (0%)
	School	7 (7%)	31 (33%)	25 (26%)	11 (12%)	9 (9%)	8 (8%)	4 (4%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Central	5 (12%)	14 (33%)	16 (37%)	5 (12%)	1 (2%)	1 (2%)	1 (2%)
	School	4 (4%)	19 (20%)	26 (27%)	20 (21%)	13 (14%)	9 (9%)	4 (4%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Central	4 (9%)	8 (19%)	18 (42%)	4 (9%)	5 (12%)	4 (9%)	0 (0%)
	School	3 (3%)	14 (15%)	26 (27%)	19 (20%)	19 (20%)	12 (13%)	2 (2%)

My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Central	3 (7%)	11 (26%)	15 (35%)	10 (23%)	3 (7%)	1 (2%)	0 (0%)
	School	3 (3%)	22 (23%)	26 (27%)	22 (23%)	9 (9%)	10 (11%)	3 (3%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Central	10 (23%)	19 (44%)	11 (26%)	2 (5%)	1 (2%)	0 (0%)	0 (0%)
	School	16 (17%)	31 (33%)	26 (27%)	14 (15%)	2 (2%)	5 (5%)	1 (1%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Central	0 (0%)	8 (19%)	12 (28%)	9 (21%)	9 (21%)	3 (7%)	2 (5%)
	School	1 (1%)	16 (17%)	26 (27%)	14 (15%)	18 (19%)	10 (11%)	10 (11%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Central	5 (12%)	17 (40%)	13 (30%)	5 (12%)	1 (2%)	2 (5%)	0 (0%)
	School	12 (13%)	29 (31%)	25 (26%)	11 (12%)	12 (13%)	3 (3%)	3 (3%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Central	2 (5%)	7 (16%)	8 (19%)	15 (35%)	8 (19%)	3 (7%)	0 (0%)
	School	2 (2%)	21 (22%)	19 (20%)	19 (20%)	17 (18%)	13 (14%)	4 (4%)

Table 23

Results of Chi-square Test and Descriptive Statistics for Survey Questions Relating to Successful RCM Implementation by Unit Type

Survey Question	Unit Type	*n*	*M*	*Mdn*	*SD*	χ^2*	df	*p*	*V*
My institution successfully implemented its version of responsibility center management.	Central	43	2.7	2.0	1.1	23.842	6	.001	.416
	School	95	4.1	4.0	1.7				
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Central	43	3.1	3.0	1.6	5.033	6	.540	.191
	School	95	3.5	3.0	1.5				
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Central	43	3.0	3.0	1.2	2.671	6	.849	.139
	School	95	3.2	3.0	1.5				
Central leaders at my institution were supportive of the change to responsibility center management.	Central	43	1.9	2.0	0.9	2.827	5	.727	.143
	School	95	2.0	2.0	1.1				
School/college leaders at my institution were supportive of the change to responsibility center management.	Central	43	3.4	3.0	1.3	5.832	5	.323	.206
	School	95	3.2	3.0	1.3				
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Central	43	3.0	3.0	1.5	7.287	6	.295	.230
	School	95	3.6	3.0	1.7				
My institution implemented responsibility center management in line with its strategy and timeline.	Central	43	2.8	2.0	1.4	17.001	6	.009	.351
	School	95	3.7	3.0	1.7				
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Central	43	3.8	4.0	1.4	13.133	6	.041	.308
	School	95	4.5	5.0	1.8				
The university community was informed about the change to responsibility center management and its implications.	Central	43	1.8	2.0	0.8	14.055	6	.029	.319
	School	95	2.5	2.0	1.3				
My institution provides ample training for employees at all levels of the institution.	Central	43	4.2	4.0	1.4	12.293	5	.031	.298
	School	95	4.8	5.0	1.6				
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Central	43	3.6	3.0	1.7	10.419	6	.108	.275
	School	95	4.1	4.0	1.8				

My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Central	43	3.8	4.0	1.6	12.618	6	.050	.302
	School	95	4.4	5.0	1.8				
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Central	43	3.4	3.0	1.6	9.184	6	.163	.258
	School	95	4.2	4.0	1.7				
My institution's version of responsibility center management was adapted to meet institutional needs.	Central	43	2.4	2.0	1.3	14.412	6	.025	.323
	School	95	3.3	3.0	1.6				
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Central	43	2.8	3.0	1.3	12.985	6	.043	.307
	School	95	3.7	3.0	1.5				
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Central	43	3.2	3.0	1.4	8.845	6	.183	.253
	School	95	3.9	4.0	1.4				
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Central	43	3.0	3.0	1.1	5.696	6	.458	.203
	School	95	3.6	3.0	1.5				
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Central	43	2.2	2.0	0.9	7.092	6	.312	.227
	School	95	2.7	3.0	1.3				
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Central	43	3.8	4.0	1.4	2.820	6	.831	.143
	School	95	4.1	4.0	1.6				
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Central	43	2.7	2.0	1.2	5.788	6	.447	.205
	School	95	3.0	3.0	1.5				
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Central	43	3.7	4.0	1.3	6.816	6	.338	.222
	School	95	3.9	4.0	1.5				

Note . 3 respondents could not be classified as central or school, thus *N*= 138. *p<.05

Position Type. Most respondents self-classified into positions; the remaining chose not to answer or identified as other. Of the 141 survey respondents, six could not be grouped into a position type because either they chose not to identify or their description of their unit was missing. Table 24 shows the responses by participants classified into position type. Table 25 shows the descriptive statistics, chi square, and Cramer's *V* test results. One survey question, about whether institutions have sufficient resources to operate in their new financial models, yielded significant results, χ^2 (18, N = 135) = 29.798, p = .039, V = .271, thus showing that moderate differences existed between position types in

the responses regarding the sufficiency of resources to operate in RCM models at the institutions of the respondents.

Table 24

Responses to Questions about Successful RCM Implementation by Position Type

Survey Question	Unit Type	Response						
		Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	Executive	2 (5%)	10 (25%)	11 (28%)	5 (13%)	6 (15%)	3 (8%)	3 (8%)
	Senior	2 (5%)	14 (34%)	9 (22%)	6 (15%)	7 (17%)	1 (2%)	2 (5%)
	Middle	1 (2%)	13 (30%)	7 (16%)	8 (19%)	7 (16%)	3 (7%)	4 (9%)
	Faculty	1 (9%)	1 (9%)	2 (18%)	2 (18%)	3 (27%)	0 (0%)	2 (18%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Executive	5 (13%)	12 (30%)	9 (23%)	3 (8%)	9 (23%)	1 (3%)	1 (3%)
	Senior	2 (5%)	13 (32%)	12 (29%)	3 (7%)	7 (17%)	4 (10%)	0 (0%)
	Middle	2 (5%)	9 (21%)	16 (37%)	6 (14%)	3 (7%)	5 (12%)	2 (5%)
	Faculty	1 (9%)	1 (9%)	4 (36%)	1 (9%)	3 (27%)	1 (9%)	0 (0%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Executive	5 (13%)	11 (28%)	13 (33%)	4 (10%)	3 (8%)	3 (8%)	1 (3%)
	Senior	1 (2%)	19 (46%)	11 (27%)	2 (5%)	4 (10%)	4 (10%)	0 (0%)
	Middle	0 (0%)	15 (35%)	15 (35%)	5 (12%)	5 (12%)	2 (5%)	1 (2%)
	Faculty	1 (9%)	2 (18%)	1 (9%)	4 (36%)	3 (27%)	0 (0%)	0 (0%)
Central leaders at my institution were supportive of the change to responsibility center management.	Executive	19 (48%)	14 (35%)	4 (10%)	2 (5%)	0 (0%)	1 (3%)	0 (0%)
	Senior	16 (39%)	16 (39%)	5 (12%)	2 (5%)	2 (5%)	0 (0%)	0 (0%)
	Middle	10 (23%)	22 (51%)	8 (19%)	3 (7%)	0 (0%)	0 (0%)	0 (0%)
	Faculty	6 (55%)	4 (36%)	0 (0%)	1 (9%)	0 (0%)	0 (0%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	Executive	3 (8%)	9 (23%)	15 (38%)	6 (15%)	5 (13%)	2 (5%)	0 (0%)
	Senior	3 (7%)	12 (29%)	11 (27%)	6 (15%)	6 (15%)	3 (7%)	0 (0%)
	Middle	2 (5%)	5 (12%)	18 (42%)	6 (14%)	9 (21%)	3 (7%)	0 (0%)
	Faculty	1 (9%)	2 (18%)	5 (45%)	2 (18%)	1 (9%)	0 (0%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Executive	4 (10%)	9 (23%)	13 (33%)	4 (10%)	4 (10%)	4 (10%)	2 (5%)
	Senior	4 (10%)	13 (32%)	10 (24%)	3 (7%)	6 (15%)	4 (10%)	1 (2%)
	Middle	3 (7%)	9 (21%)	12 (28%)	6 (14%)	6 (14%)	5 (12%)	2 (5%)
	Faculty	2 (18%)	2 (18%)	3 (27%)	0 (0%)	1 (9%)	2 (18%)	1 (9%)
My institution implemented responsibility center management in line with its strategy and timeline.	Executive	3 (8%)	11 (28%)	11 (28%)	3 (8%)	7 (18%)	4 (10%)	1 (3%)
	Senior	3 (7%)	16 (39%)	4 (10%)	6 (15%)	8 (20%)	3 (7%)	1 (2%)
	Middle	2 (5%)	16 (37%)	8 (19%)	6 (14%)	6 (14%)	3 (7%)	2 (5%)
	Faculty	2 (18%)	3 (27%)	3 (27%)	0 (0%)	1 (9%)	0 (0%)	2 (18%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Executive	4 (10%)	5 (13%)	9 (23%)	4 (10%)	7 (18%)	7 (18%)	4 (10%)
	Senior	2 (5%)	7 (17%)	9 (22%)	7 (17%)	7 (17%)	6 (15%)	3 (7%)
	Middle	0 (0%)	3 (7%)	8 (19%)	8 (19%)	12 (28%)	6 (14%)	6 (14%)
	Faculty	0 (0%)	3 (27%)	2 (18%)	2 (18%)	2 (18%)	0 (0%)	2 (18%)
The university community was informed about the change to responsibility center management and its implications.	Executive	12 (30%)	15 (38%)	10 (25%)	2 (5%)	0 (0%)	1 (3%)	0 (0%)
	Senior	10 (24%)	18 (44%)	7 (17%)	3 (7%)	2 (5%)	1 (2%)	0 (0%)
	Middle	10 (23%)	21 (49%)	8 (19%)	2 (5%)	1 (2%)	1 (2%)	0 (0%)
	Faculty	2 (18%)	4 (36%)	2 (18%)	1 (9%)	1 (9%)	0 (0%)	1 (9%)
My institution provides ample training for employees at all levels of the institution.	Executive	0 (0%)	4 (10%)	9 (23%)	9 (23%)	6 (15%)	8 (20%)	4 (10%)
	Senior	0 (0%)	6 (15%)	8 (20%)	6 (15%)	9 (22%)	9 (22%)	3 (7%)
	Middle	0 (0%)	5 (12%)	4 (9%)	6 (14%)	9 (21%)	14 (33%)	5 (12%)
	Faculty	0 (0%)	2 (18%)	1 (9%)	1 (9%)	2 (18%)	4 (36%)	1 (9%)

My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Executive	4 (10%)	7 (18%)	8 (20%)	7 (18%)	6 (15%)	4 (10%)	4 (10%)
	Senior	1 (2%)	14 (34%)	6 (15%)	5 (12%)	8 (20%)	5 (12%)	2 (5%)
	Middle	0 (0%)	8 (19%)	12 (28%)	7 (16%)	2 (5%)	12 (28%)	2 (5%)
	Faculty	2 (18%)	0 (0%)	2 (18%)	1 (9%)	3 (27%)	2 (18%)	1 (9%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Executive	3 (8%)	11 (28%)	7 (18%)	5 (13%)	7 (18%)	3 (8%)	4 (10%)
	Senior	1 (2%)	6 (15%)	6 (15%)	7 (17%)	13 (32%)	4 (10%)	4 (10%)
	Middle	1 (2%)	4 (9%)	9 (21%)	4 (9%)	9 (21%)	13 (30%)	3 (7%)
	Faculty	2 (18%)	3 (27%)	0 (0%)	1 (9%)	2 (18%)	0 (0%)	3 (27%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Executive	2 (5%)	8 (20%)	14 (35%)	5 (13%)	1 (3%)	5 (13%)	5 (13%)
	Senior	3 (7%)	7 (17%)	9 (22%)	7 (17%)	7 (17%)	5 (12%)	3 (7%)
	Middle	3 (7%)	6 (14%)	5 (12%)	11 (26%)	6 (14%)	9 (21%)	3 (7%)
	Faculty	0 (0%)	1 (9%)	3 (27%)	2 (18%)	3 (27%)	0 (0%)	2 (18%)
My institution's version of responsibility center management was adapted to meet institutional needs.	Executive	7 (18%)	17 (43%)	6 (15%)	3 (8%)	4 (10%)	2 (5%)	1 (3%)
	Senior	5 (12%)	17 (41%)	10 (24%)	4 (10%)	3 (7%)	1 (2%)	1 (2%)
	Middle	3 (7%)	14 (33%)	12 (28%)	3 (7%)	4 (9%)	7 (16%)	0 (0%)
	Faculty	2 (18%)	3 (27%)	4 (36%)	1 (9%)	1 (9%)	0 (0%)	0 (0%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Executive	4 (10%)	14 (35%)	12 (30%)	4 (10%)	1 (3%)	4 (10%)	1 (3%)
	Senior	3 (7%)	7 (17%)	15 (37%)	7 (17%)	7 (17%)	2 (5%)	0 (0%)
	Middle	2 (5%)	9 (21%)	13 (30%)	9 (21%)	4 (9%)	4 (9%)	2 (5%)
	Faculty	0 (0%)	2 (18%)	2 (18%)	4 (36%)	2 (18%)	0 (0%)	1 (9%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Executive	3 (8%)	9 (23%)	14 (35%)	5 (13%)	4 (10%)	3 (8%)	2 (5%)
	Senior	1 (2%)	8 (20%)	15 (37%)	5 (12%)	7 (17%)	5 (12%)	0 (0%)
	Middle	2 (5%)	4 (9%)	14 (33%)	10 (23%)	7 (16%)	6 (14%)	0 (0%)
	Faculty	1 (9%)	0 (0%)	2 (18%)	2 (18%)	5 (45%)	1 (9%)	0 (0%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Executive	4 (10%)	10 (25%)	13 (33%)	4 (10%)	5 (13%)	3 (8%)	1 (3%)
	Senior	0 (0%)	10 (24%)	13 (32%)	12 (29%)	3 (7%)	2 (5%)	1 (2%)
	Middle	1 (2%)	8 (19%)	12 (28%)	14 (33%)	4 (9%)	4 (9%)	0 (0%)
	Faculty	1 (9%)	5 (45%)	0 (0%)	2 (18%)	0 (0%)	2 (18%)	1 (9%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Executive	10 (25%)	15 (38%)	10 (25%)	3 (8%)	1 (3%)	0 (0%)	1 (3%)
	Senior	7 (17%)	16 (39%)	10 (24%)	5 (12%)	1 (2%)	2 (5%)	0 (0%)
	Middle	5 (12%)	17 (40%)	11 (26%)	6 (14%)	1 (2%)	3 (7%)	0 (0%)
	Faculty	4 (36%)	2 (18%)	3 (27%)	2 (18%)	0 (0%)	0 (0%)	0 (0%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Executive	0 (0%)	8 (20%)	15 (38%)	8 (20%)	5 (13%)	1 (3%)	3 (8%)
	Senior	1 (2%)	7 (17%)	12 (29%)	5 (12%)	9 (22%)	5 (12%)	2 (5%)
	Middle	0 (0%)	5 (12%)	10 (23%)	7 (16%)	10 (23%)	5 (12%)	6 (14%)
	Faculty	0 (0%)	1 (9%)	2 (18%)	3 (27%)	2 (18%)	2 (18%)	1 (9%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Executive	3 (8%)	14 (35%)	15 (38%)	4 (10%)	3 (8%)	0 (0%)	1 (3%)
	Senior	9 (22%)	14 (34%)	11 (27%)	0 (0%)	3 (7%)	3 (7%)	1 (2%)
	Middle	3 (7%)	13 (30%)	8 (19%)	10 (23%)	7 (16%)	2 (5%)	0 (0%)
	Faculty	2 (18%)	3 (27%)	4 (36%)	1 (9%)	0 (0%)	0 (0%)	1 (9%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Executive	2 (5%)	11 (28%)	7 (18%)	9 (23%)	5 (13%)	4 (10%)	2 (5%)
	Senior	2 (5%)	8 (20%)	12 (29%)	6 (15%)	9 (22%)	4 (10%)	0 (0%)
	Middle	0 (0%)	7 (16%)	6 (14%)	15 (35%)	8 (19%)	7 (16%)	0 (0%)
	Faculty	0 (0%)	2 (18%)	3 (27%)	2 (18%)	3 (27%)	0 (0%)	1 (9%)

Note . Numbers in parenthesis indicate column percentages within each survey question. 6 respondents could not be classified by position, thus $N = 135$. *p<.05

Table 25

Results of Chi-square Test and Descriptive Statistics for Survey Questions Relating to Successful RCM Implementation by Position Type

Survey Question	Unit Type	*n*	*M*	*Mdn*	*SD*	χ^2*	df	*p*	*V*
My institution successfully implemented its version of responsibility center management.	Executive	40	3.6	3.0	1.7	9.632	18	.943	.154
	Senior	41	3.3	3.0	1.5				
	Middle	43	3.7	4.0	1.7				
	Faculty	11	4.2	4.0	1.9				
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Executive	40	3.2	3.0	1.6	16.241	18	.576	.200
	Senior	41	3.3	3.0	1.5				
	Middle	43	3.5	3.0	1.5				
	Faculty	11	3.6	3.0	1.5				
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Executive	40	3.1	3.0	1.5	26.333	18	.092	.255
	Senior	41	3.0	3.0	1.4				
	Middle	43	3.2	3.0	1.3				
	Faculty	11	3.5	4.0	1.4				
Central leaders at my institution were supportive of the change to responsibility center management.	Executive	40	1.8	2.0	1.1	15.941	15	.386	.198
	Senior	41	2.0	2.0	1.1				
	Middle	43	2.1	2.0	0.8				
	Faculty	11	1.6	1.0	0.9				
School/college leaders at my institution were supportive of the change to responsibility center management.	Executive	40	3.2	3.0	1.3	7.717	15	.935	.138
	Senior	41	3.2	3.0	1.4				
	Middle	43	3.6	3.0	1.3				
	Faculty	11	3.0	3.0	1.1				
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Executive	40	3.4	3.0	1.7	7.177	18	.989	.133
	Senior	41	3.2	3.0	1.6				
	Middle	43	3.6	3.0	1.6				
	Faculty	11	3.5	3.0	2.1				
My institution implemented responsibility center management in line with its strategy and timeline.	Executive	40	3.4	3.0	1.6	16.779	18	.538	.204
	Senior	41	3.3	3.0	1.6				
	Middle	43	3.3	3.0	1.6				
	Faculty	11	3.3	3.0	2.1				
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Executive	40	4.1	4.0	1.9	14.773	18	.678	.191
	Senior	41	4.0	4.0	1.7				
	Middle	43	4.7	5.0	1.5				
	Faculty	11	4.0	4.0	1.8				

The university community was informed about the change to responsibility center management and its implications.	Executive	40	2.2	2.0	1.1	17.318	18	.501	.207
	Senior	41	2.3	2.0	1.2				
	Middle	43	2.2	2.0	1.1				
	Faculty	11	2.9	2.0	1.8				
My institution provides ample training for employees at all levels of the institution.	Executive	40	4.4	4.0	1.5	8.008	15	.923	.141
	Senior	41	4.4	5.0	1.6				
	Middle	43	4.9	5.0	1.5				
	Faculty	11	4.7	5.0	1.7				
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Executive	40	3.8	4.0	1.8	27.520	18	.070	.261
	Senior	41	3.7	3.0	1.7				
	Middle	43	4.1	4.0	1.6				
	Faculty	11	4.2	5.0	2.0				
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Executive	40	3.7	3.0	1.8	29.798	18	.039	.271
	Senior	41	4.3	5.0	1.6				
	Middle	43	4.6	5.0	1.6				
	Faculty	11	3.9	4.0	2.4				
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Executive	40	3.8	3.0	1.8	19.508	18	.361	.219
	Senior	41	3.9	4.0	1.7				
	Middle	43	4.2	4.0	1.7				
	Faculty	11	4.4	4.0	1.6				
My institution's version of responsibility center management was adapted to meet institutional needs.	Executive	40	2.8	2.0	1.6	14.296	18	.710	.188
	Senior	41	2.8	2.0	1.4				
	Middle	43	3.3	3.0	1.6				
	Faculty	11	2.6	3.0	1.2				
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Executive	40	3.0	3.0	1.5	19.297	18	.374	.218
	Senior	41	3.3	3.0	1.3				
	Middle	43	3.6	3.0	1.5				
	Faculty	11	3.9	4.0	1.4				
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Executive	40	3.4	3.0	1.6	20.816	18	.289	.227
	Senior	41	3.6	3.0	1.4				
	Middle	43	3.8	4.0	1.4				
	Faculty	11	4.2	5.0	1.4				
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Executive	40	3.2	3.0	1.5	23.968	18	.156	.243
	Senior	41	3.4	3.0	1.2				
	Middle	43	3.6	4.0	1.2				
	Faculty	11	3.5	2.0	2.1				

My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Executive	40	2.4	2.0	1.3	12.069	18	.844	.173
	Senior	41	2.6	2.0	1.3				
	Middle	43	2.8	2.0	1.3				
	Faculty	11	2.3	2.0	1.2				
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Executive	40	3.6	3.0	1.4	13.924	18	.734	.185
	Senior	41	3.9	4.0	1.5				
	Middle	43	4.4	4.0	1.6				
	Faculty	11	4.5	4.0	1.5				
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Executive	40	2.9	3.0	1.2	28.769	18	.051	.267
	Senior	41	2.7	2.0	1.6				
	Middle	43	3.3	3.0	1.4				
	Faculty	11	2.8	3.0	1.7				
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Executive	40	3.6	3.5	1.6	20.161	18	.324	.223
	Senior	41	3.6	3.0	1.4				
	Middle	43	4.0	4.0	1.3				
	Faculty	11	3.9	4.0	1.5				

Note . 6 respondents could not be classified by position, thus *N*= 135. *p<.05

The researcher used standardized residuals to analyze further the results by position type for the question that yielded a significant *p* value in chi square tests, as described above. As shown in Table 26, middle managers disagreed more often than expected that their institutions had sufficient financial, technical, and personnel resources to operate their new financial models effectively.

Table 26

Standardized Residuals for Significant Chi Square Results about Successful RCM Implementation by Position Type

Survey Question	Position Pair	Position Type			
		Executive	Senior	Middle	Faculty
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Strongly Agree (1)	.6	-.8	-.8	1.9
	Agree (2)	1.5	-.5	-1.3	.7
	Somewhat Agree (3)	.2	-.3	.8	-1.3
	Neither Agree nor Disagree (4)	.0	.8	-.6	-.3
	Somewhat Disagree (5)	-.7	1.2	-.3	-.3
	Disagree (6)	-1.2	-.8	**2.6**	-1.3
	Strongly Disagree (7)	-.1	-.1	-.7	1.7

Note . Standardized residuals in bold are those that exceed +/- 2.

Results Relating to Conceptual Framework

The conceptual framework of this study, shown in Figure 4, posited that successful RCM implementations require attention to five areas: leadership, implementation planning, communication, attention to resources, and continuous improvement. Much like legs of a stool, all of these areas are required, else implementations can become more difficult or even fail to achieve desired results. Respondents in this study were asked to respond to nine open-ended questions, including one that allowed for additional comments, and their responses mirrored their selections in the closed-ended questions. Respondents were not required to provide responses to these questions in order to complete the survey, but 89 percent, or 126 respondents, provided responses to at least one of the open-ended questions. As shown in Appendix E, the survey questions, depending on the responses of the participants, could be linked to both research questions and their sub-questions; as such, the results of the qualitative portion of the survey were arrayed in line with the themes of the conceptual frame.

Leadership

Leadership was key for respondents in describing the successes and failures of their RCM implementations. In the advice respondents provided for future implementers, seven recommended ensuring strong managerial oversight and direction. Ten respondents recommended making sure clear roles, expectations, and parameters were set prior to implementation, which linked strongly to their responses in closed ended questions, as 70 percent of respondents at least somewhat agreed that leaders in their institutions understood their respective roles in the budget process. Four respondents emphasized solidifying institutional governance structures, 10 mentioned the need for openness and

honesty in leadership, two urged future implementers to ensure they had a strong provost in place, and six stated that central leaders needed to empower the deans. Five respondents emphasized a reduced fiscal role for the provost, while a senior school leader highlighted the important role of the provost in RCM institutions, stating, "Even greater management of deans by the provost is required to fully implement RCM. Some deans and some provosts/presidents are not a good fit for RCM." Similarly, one former provost touted the attention given to deans under RCM as a positive feature, writing, "One great thing about it is it forces institutions to pay much more attention to the quality of the deans. You have to hire good deans for this model to work well." When asked how they would change their institutions' RCM models, five respondents stated they would improve governance and 10 stated they would improve management structures.

Respondents felt leadership was important, especially under the more complex RCM model, because of shifts in roles associated with the change. Twenty-seven respondents felt that RCM led to a more powerful and more important administrative role for the deans, 11 felt RCM led to a larger role for the department heads, five cited more involvement from faculty in the administration of the institution and its finances, five stated that RCM put more pressure on middle management, and seven said RCM led a bigger role for staff involved in the budget. Although some respondents felt faculty were more involved, two non-faculty respondents cited increased faculty anxiety as a negative in their models. Twelve respondents felt that RCM did not lead to significant shifts in roles, 23 stated that central leadership retained most of the power within the institution, and four stated that their institutions relied too much on the formulas of their RCM models.

Although 10 respondents indicated that one of the most important features of their RCM models was a widespread understanding of roles and responsibilities, four respondents specifically mentioned that there were power struggles at their institutions when asked about shifts in roles as a result of RCM implementation, another indication that roles and responsibilities were not well known and/or adhered to in those institutions, including one mid-level school leader who wrote, “It was good in theory, but politics and power struggles seem to be dooming the effort.” This tied closely with the quantitative results, where 63 percent of respondents at least somewhat agreed that leaders in their institution worked together effectively. Twenty respondents indicated that there was mistrust between central and school units, as one senior school leader who wrote, “RCM also exposed deep-seated mistrust between central and academic units. This should have been actively and directly addressed during or prior to RCM planning.” Fifteen cited too little accountability for central units as a negative feature of their model. One school leader summarized the school-view of central in RCM as “The model has been widely accepted and implemented at the unit/school level, but the Cost Centers have not adjusted their practices to fall in line. Everyone should be held accountable to the changes, no matter your role.” Related to the feelings of mistrust, 12 respondents cited as a negative the impact of RCM on feelings of community within their institutions, as summarized by one senior central leader, “Decisions were made based on how funding would flow, rather than scholarly, academic, or community impact.”

Four respondents from three institutions cited a lack of strong leadership as a negative in their RCM implementations, including one respondent from a school unit who wrote, “RCM is a huge cultural change to a university environment. I understand

the premise and see the benefits of it. It takes strong leadership to make it happen. I don't think we have strong enough leadership at our institution." A faculty respondent criticized executives in his/her institutions for not providing strong leadership, writing:

> It has enabled the central administration that lacks vision for the institution to abdicate their decision making by hiding behind RCM. Indeed, a computer program can run the place now, and optimize all to major in low cost disciplines, instead of what is good for the state, students and tax payers.

Central leaders also pointed to lack of leadership and understanding of the model, as one central executive took aim at school leaders, writing, "A few deans are trying to game the system, and a few deans do not understand the model sufficiently to plan new programs or eliminate old ones." Another senior central administrator wrote, "Some deans operate as though they are trying to make a profit which is not the purpose." One the other side, one dean wrote, "Central leaders still exert considerable control and have been unwilling to give deans more autonomy (despite leading the charge to shift to an RCM-type model in the first place)."

Seven respondents mentioned that the future of RCM depended on the decisions of central leaders, while another four indicated uncertainty about the model because of changes in central leadership. One central executive highlighted the importance of leadership support and decisions in implementing and maintaining an RCM model as one of his/her institution's model's most important features, writing, "buy-in from senior leadership that central budget decisions must be implemented in a manner consistent with RCM (instead of undermining it)."

Planning and Implementation

Eight respondents cited RCM as a tool for institutions, as one senior school leader summarized:

> RCM is an excellent tool to allow the university to manage its resources. The institution needs to ensure that strategic decisions and the direction of the university within its core mission of teaching, research and outreach are not driven by RCM but RCM is just a tool to [inform] decision making.

Accordingly, institutions embark on a planning process to implement RCM. Respondents provided ample information about the planning process in the open-ended survey questions, including setting the vision for the model, the planning process itself, the involvement of people in the planning process, the building of incentives and subvention, and the setting of the model parameters and functioning. In the quantitative portion of the survey, respondents also touched upon the planning process. When asked whether their institutions had an implementation plan, 63 percent at least somewhat agreed that they did. A lower percentage (58%) at least somewhat agreed their institutions had implemented RCM in accordance with institutional strategy and timeline, and there was a divide between central and school respondents, with 73 percent of the former but only 53 percent of the latter at least somewhat agreeing. As one school executive wrote:

> If leadership had sought to build a strategic plan that included staff and faculty before the change took [effect] rather than in the first few months of implementation I believe that the principles, vision and goals developed in that process would have made the transition easier to grasp and engage in. We were a bit horse before cart when we started.

Though institutions often set out to implement RCM, the respondents in this study indicated their institutions had not achieved full implementation of RCM's practices, as one school executive wrote, "No one fully implements a pure RCM model. Institutions have to figure out what it is they are trying to accomplish first and then see if an RCM budget system helps them do that." One faculty member warned institutions about partial implementation, writing, "Be careful. Either go to a fully decentralized model- funds flow to units generating them and the units pay for central functions; or nothing." One faculty member illustrated the question of what RCM looks like in practice by writing, "I would also completely rethink whether we can have a real RCM model. Our hybrid model may well result in the worst of the RCM, non-RCM portions of our budget."

Seven respondents advised future implementers to ensure institutional values were set prior to moving to RCM, three advised aligning with those values, and ten advised beginning with the end goals in mind, with one senior central leader writing, "Assess whether RCM truly meets the institution's goals/philosophy of budgeting and allocating resources." Nine respondents said they would shape the model more to their institutional needs, if given the chance to change their model. Two respondents also warned future implementers about over-promising the effects of implementation, while nine suggested keeping the model simple, and 14 said they would simplify their model if given the chance.

Respondents gave ample advice for future implementers regarding the RCM planning process. Fifteen suggested benchmarking peer institutions, while two suggested bringing in consultants to aid in the process, and four suggested considering other options for cost containment before choosing RCM. Regarding consultants, one mid-level central

administrator commented, “Bring in a professional who knows what to do. The first time we tried to implement it, we did it ourselves and it failed miserably. Second time, had help and it kind of worked.” Additionally, seven respondents advised future implementers to invest in the planning process and 14 advised implementers to take time to plan their models, as one central executive leader wrote, “It is a very long process. I would plan on 3-5 years as an implementation schedule. There can be incremental implementation quicker but not a full program.” A senior school leader added, “Do not allow the timeline for adopting RCM to be pre-determined by a central administration without understanding from other universities how long it really takes to implement well.” Four respondents specifically mentioned that future implementers should have trial year prior to full RCM implementation, as one mid-level school leader advised, “To have a trial period before rolling out RCM; this will help to work out the ‘kinks’ and to help with the decision making process to fully implement RCM.” 23 respondents advised involving many people throughout the organization in the planning process. Highlighting the need for widespread involvement in the planning process, one central executive wrote, “The faculty and staff must be involved in [designing] the plan. It may take longer than if experts design the budget system, but no buy-in would result in no compliance.” A mid-level school leader agreed with the sentiment, but gave specific reasons for needing broad buy-in and involvement in the planning process:

> My greatest advice would be to consult all levels of the institution as you plan a change in budget model. Our institution consulted high-level financial officers, Deans, Vice Chancellors, and other executive leaders. However, financial staff and department financial managers were not adequately consulted or trained on

> the new budget model, but were ultimately responsible for the day-to-day management of resources in the new environment. Second, I would recommend that appropriate online or other tools are developed (through consultation with all levels), tested, and implemented before fully changing the budget model. Our institution has struggled in this area.

Another mid-level school leader summarized the need for widespread consultation in the planning process, writing, "Consult all relevant stakeholders and involve them in the process to generate buy-in. When you think you have done all the necessary consultation, do it again and again."

Twenty-nine people discussed subvention or subsidies for units in their open-ended survey question responses. One central executive spoke of the importance of such subsidies, writing, "Some schools do not generate enough revenue to cover costs and hence need to receive some form of subvention in order to survive." A school executive highlighted the difficulty of implementing subvention methodology well, writing:

> How do you create equity before you implement RCM? No one did that in my institution. So RCM baselined huge inequities, and the formerly inefficient units swept in and started teaching with their slack resources, thereby causing problems for the previously efficient units.

A senior school leader at another institution agreed, writing, "We have had a hold harmless provision since our RCM implementation and it has helped a number of colleges and hurt others. It was necessary at the beginning but now merely perpetuates inequities." Another school executive suggested creating a methodology for subvention,

advising future implementers to “Come up with formulas for subsidies in the same way there are formulas for revenue sharing related to academic and research programs.”

Incentives were another concern for participants, as four advised ensuring incentives were built into the RCM model and four cautioned future implementers to be careful in building incentives, including one school executive who wrote, “Cannot yet clarify/determine how a unit is incentivized via the model/process.” Another school executive from a different institution cited the need for incentives to be “achievable and attractive.” When asked how they would change their RCM model if given the chance, eight school leaders said they would implement more incentives to mitigate the singular focus on student credit hour generation, including one senior school leader who wrote about the need to build incentives around institutional priorities:

> There needs to be far more alignment between our institution's stated values and its revenue distribution model to create better incentives for desirable behavior. If interdisciplinary learning is a value central to our mission, part of the distribution model should reward financially those units that engage in that interdisciplinary work. This could be measured in cross-listed courses, or extra resources for two different units to offer a joint degree program, etc. If global impact is an institutional priority, then resources must be dedicated to incentivizing academic programs and courses with a global focus and that engage global audiences. If diversity is a priority, then financial incentives must be created for enrolling a diverse student body or for engaging in research with a focus on equity and diversity or for making degree programs have a diversity lens to them. Right now there are too many people fighting over very narrow metrics - SCHs and student

> body counts - and not enough people working together to advance strategic priorities and declared institutional values.

Three participants, from three institutions, cited a lack of clarity regarding incentives leading units to revert to pre-RCM practices, including one mid-level school leader who wrote, “Many department heads have been angered because they worked hard to increase majors and SCH but got budget cuts from their colleges - there did not seem to be a relationship to their work with results. So now they have backed off and retrenched.” A faculty member strongly agreed, writing:

> The contested word on campus is “incentive.” The provost and deans don’t care for it (Your incentive comes every two weeks as your paycheck!). But [department chairs] and faculty are wondering why they are working harder if their units don’t get anything out of it. For example, I worked hard the past three years to increase SCH, and faculty took on larger classes and additional gen-eds. We made the college more money. Yet, last year we received a budget cut, even as the dean’s office keeps growing. That pretty much took out any incentive for us (and other [department chairs]/departments) to work harder – I no longer put any attention to SCH and don’t worry if the college is doing well or not, since I see the budget is not tied to our results/effort. It’s more about politicking – the previous budgeting system. Not quite sure that is what RCM intended!

Three participants, from three institutions, did not believe incentives were in place at their institutions, leading one dean to write, “because it was so poorly [implemented] we have moved back to politics as the basis for decisions.”

In their discussions of planning the specifics of RCM implementations, two respondents advised future implementers to avoid focusing solely on student credit hour generation and enrollment, while one encouraged use of smoothing effects, writing, "Use an average of several years' worth of data to determine the indirect costs and roll the average forward so no unit has severe changes to indirect costs from one year to the next, which can really cause budget problems." One senior-level central leader said he/she would have included all funds and all units in the model, writing, "It should be all General funds (ours separated state support from tuition) [and] all units, not just academic." Eight respondents emphasized the need for clarity around the extent to which the RCM model would be devolved within the institution, with one central executive writing, "As part of the implementation the institution needs to work with the colleges/departments on consistency on how RCM is implemented all with way down," and one dean from the same institution giving an example of why consistent devolution is important:

> In my college, we distribute down to [the department] level. So, all of my departments are more entrepreneurial than pre-RCM. This is not true across campus. We are the only college that has distributed to department level. For many others, RCM at department level looks exactly like the budget process pre-RCM.

Five respondents advised future implementers to keep in mind high and low times when planning their models, with one senior central leader writing, "Design a model that works when revenues are increase and which also works when revenues decrease." Along the same lines, three respondents encouraged planning for contingencies, especially changes

in state funding, as one central executive wrote, “Have a lot of free thinking discussions and be creative in thinking about worst case scenarios so that they can be addressed and planned for in advance.”

Fifteen respondents advised future implementers to model the effects of RCM on their institutions prior to implementation and to find and close loopholes in their methodology. As one senior school leader wrote, “Worry about (and try to model and focus-group) unintended consequences.” Three respondents said they would change their RCM models to make them less centered on rewarding growth, while two cited as a negative that RCM had encouraged uncontrolled growth without consideration for infrastructure. One mid-level school leader reported:

> It has incentivized recruiting the greatest number of students possible to an individual program/department. This has led to an increase in faculty hiring, but has not increased the number of support/administrative staff nor physical space to accommodate more students and faculty.

Five respondents said they would make their models less about the underlying formulae, if given a chance to change, as one senior central leader wrote, “There needs to be more manual intervention or touch-points, rather than allowing the formulae to rule the distribution of funds exclusively; and, we are working on mechanisms to achieve that goal.”

Communication

Thirty-one respondents thought the move to an RCM model had increased clarity and transparency in their institutions and 24 stated that the increased transparency was one of the most important features of their RCM models. Five respondents mentioned

that their models were simple to understand and three stated their RCM models provided them with a common language; however, seven indicated that their model was difficult to understand and one highlighted the difficulty of communicating it well. In response to a survey question asking for advice for future implementers, 25 respondents emphasized the importance of communication during the RCM planning and implementation processes, as shown by a senior leader of a school:

> Remember that there is no such thing as too much communication and consultation when it comes to developing a new financial model. Everyone from leadership, faculty, managers to those who will be doing financial tracking and transfers need to be consulted.

A senior leader of a school reiterated this point, writing, "Communicate as much as possible to ALL levels so that everyone understands the allocation methods and taxes," while another senior school leader at BU went further, bringing in the role of unofficial communication channels, writing, "Constant and professional communication is an absolute. Finding ways to solicit gossip and address it directly is key - pierce the bubble." Similarly, a senior central unit leader emphasized the importance of using multiple types of communication, stating, "Communicate more using many different types of communication so that RCM is better understood." The vast majority of respondents (89%), in the closed-ended questions, at least somewhat agreed that their university communities were informed of the change to RCM, though respondents from schools at least somewhat agreed less often (85%) than their central office colleagues (96%).

In addition to advice for future implementers, respondents also provided commentary on the potential pitfalls of poor communication, including a lack of understanding of the model, as described by a senior school leader, “One of the most interesting aspects is that all management decisions seem to be blamed on RCM. I think this is partially due to the fact that people do not fully understand RCM.” 13 respondents indicated that they would improve communication about the model if they could make changes at their institutions. Communication about the model could be accomplished through clear operational manuals, but only 38 percent of respondents at least somewhat agreed their institutions had such manuals and were operating in accordance with them. Respondents from institutions with more time since their RCM implementations responded more agreeably (57%) than those from institutions newer to RCM (32%) and respondents from central offices responded more agreeably (45%) than their school counterparts (36%), indicating divides by time since implementation and unit type of the respondents.

If done right, however, at least one respondent (school executive) believed that the implementation of RCM could improve communication within his/her institution, writing:

> I believe that this model will positively change the way we operate, how we communicate and increase the engagement level of the staff in processes and lean management systems. The school is doing this work across the campus. It is, frankly, the only way forward.

Communication was viewed as pivotal for creating buy-in for the change to RCM within institutions, as 13 participants cited the importance of gaining buy-in for the change as

advice for future implementers. For example, one school executive noted the importance of communication with deans:

> Deans will adapt to accounting models, but they need to have the information to understand the game. The initial implementation of RCM at my institution did not include the deans at a level that helped them understand this dramatic change and how it would be handled for the future.

Two respondents cautioned about over-promising the gains to be made under RCM; one school leader illustrated the pitfalls of the appearance of broken promises related to RCM implementation, writing, “Promises of new money and autonomy did not truly materialize. Department Chairs, who worked on increasing enrollment, student SCH and graduate rates, did not get anything in return. Faculty, Chairs, and Deans are not happy with the results.”

Attention to Resources

Institutional resources are not just financial; RCM implementation requires attention to technical and personnel resources, including, but not limited to, attention to institutional culture, personnel readiness and skills, and reporting and other enterprise systems (Lasher and Greene, 2001; Whalen, 2002). RCM requires substantial investment, as one dean, who did not like the effects of RCM on his/her institution, emphasized, “I’m afraid we’re stuck with [it] for at least the next 20 years. Too much time, effort, and money have been plowed into the RCM initiative to abandon it now.” Though other respondents were enthusiastic about the positive aspects of RCM implementation (as one dean wrote, “Would be willing to talk with any school that wants to implement this system. I love this method of budgeting”), respondents acknowledged that the magnitude

of the change to RCM required significant resources, which their institutions provided to varying degrees. Only 47 percent of respondents at least somewhat agreed that their institutions had devoted sufficient resources to the change to RCM and an even lower percentage (38%) believed their institutions had sufficient resources to operate successfully in RCM. Middle managers were even more skeptical that their institutions had sufficient resources, with only 32 percent at least somewhat agreeing.

Respondents emphasized the need for attention to personnel resources, with 12 advising future implementers to invest in personnel prior to implementation. Four participants wrote they would improve training if they could make changes to their model, while 15 responded that personnel, including faculty, were not well trained or acculturated for the change to RCM and three cited as a negative that their RCM model did not account for the culture of the institution. Training was also emphasized in the closed-ended question responses, as only 28 percent of respondents at least somewhat agreed that their institutions provided ample training to employees, though respondents from central offices were more in agreement (35%) than their school counterparts (26%). A senior school respondent emphasized the need for training to ensure the model meets the needs of the implementing institution, writing, “I know it's not easy to create a complex system that is easy to understand, but there needs to be more training or a simplification of the model so that it is easier to understand and to predict the future.” Ten respondents stated that their institutions were not staffed appropriately for implementation of RCM, as a dean stated succinctly, “Current budget and finance staff [are] inadequate to handle RCM.” A related issue for respondents was staff turnover, as three respondents mentioned an increase in staff turnover, with one mid-level leader in a

school stating, “In our university, there has been forced retraction of staff in administrative positions and central administration to accommodate reduced funds and/or efficiency. The result is higher turnover, less institutional knowledge, consistently changing policies/procedures.” A senior school leader saw the turnover as necessary, given the differing skill sets required of staff under the more decentralized RCM model, writing, “We have experienced some staff loss, but we expected that this level of change would necessitate that.”

Thirteen participants advised future implementers to ensure they have appropriate technical resources in place prior to implementation, and 10 emphasized including ensuring and/or improving the quality of their data. Nine participants said they would improve reporting tools at their institutions if they could make changes. Six participants listed as a negative that their institutions were not technically equipped for the change to RCM, but three listed as a positive that the change led to increased investment in technology. One senior school leader wrote, “The model used here is very complex and not easy to explain or understand. Additionally, it is prepared in an Excel format (all cells have formulas from one to the next to the next)- meaning human error is a problem. It is really important to double check the information provided.” Another mid-level school administrator used the additional comments field to add:

> Our issues are unique. As RCM was implemented, a totally new financial system was rolled out with missing payroll feeds, unreliable data, poor communication between central units and schools. The data for the first full year of RCM is unreliable so that year 2 is essentially the REAL year 1. I've been impressed by the cool-headed approach of many administrators (faculty and staff) during a very

> stressful year. However, I think better training would have--not only--helped the savvy administrators prepare for the changes, but some of those less flexible administrators would have made better choices about retirement and/or job changes.

Increases in competition for resources were highlighted by respondents as a feature of their RCM models, including eight who specifically mentioned increased competition for resources, eight who wrote that “scope creep” increased as units competed for resources by entering areas previously owned by other units, and 18 who mentioned decreases in interdisciplinary work. Respondents disagreed on RCM implementation’s effects on collaboration within their institutions, with 14 saying RCM hurt collaboration and five saying that the implementation of RCM led to increases in collaboration, leading one school executive to advise, “Build in safeguards to ensure that the budget model doesn't encourage 'bad behavior' that discourages interdisciplinary collaboration. It can have a way of building silos, not breaking them down.” For example, one senior school leader wrote about encouragement of cross-school teaching under RCM, stating, “Fortunately, the tuition funding model includes a component that encourages faculty cooperation by having faculty from one school/college teach in another when needed,” while another senior school leader wrote:

> Academic units (schools/colleges) have become much more territorial and less collaborative than they were before. There are significant financial incentives under our model not to cross-list courses with other academic units, not to allow students to take courses outside their home academic unit, and not to encourage faculty to teach in academic units outside their home unit.

Respondents focused on the impact of volatility on their institutions' ability to implement RCM successfully. For example, four respondents specifically highlighted the need to pay attention to the amount of change occurring at the institution when considering how and when to implement RCM, with one mid-level school leader writing:

> Pairing the move [to RCM] with a new financial management system that has failed miserably going into its second year now, the entire experience has been traumatic to many, many employees both new and old. People are battling depression feeling that they can no longer perform their job duties after many years of success.

A senior school leader echoed this sentiment, emphasizing the negative effects of multiple, institution-wide changes and the compounding effects of a lack of good training for staff, writing:

> Previously, business managers were working on incremental budget modeling and were quickly expected to adapt to a new way of budgeting with little to no training/instruction. Therefore, business managers were now expected to act as budget analysts - a role that had previously been isolated to the central budget office. Because its implementation coincided with a major financial systems change including introduction of new chart of accounts, the ability for business managers to become budget analysts was further hindered because the system implementation had major issues AND reporting tools were primarily implemented at the highest level of the institution, not at the academic unit level where the analysis is incredibly important to understand and support a model like this.

Respondents wrote of the increased focus on finance under their RCM models, with some citing positive effects of such a focus, and others citing negative effects. Ten respondents stated that the model led to more financial discussions, while 18 stated that it helped provide the financial implications of decisions, and 18 wrote that it led to allocation of costs and revenues. Four respondents mentioned an increased emphasis on extramural funding sources and two mentioned increases in such sources. Twenty-two respondents stated that units in their institution began focusing more on improving the various metrics in their RCM models (e.g. student credit hours), two respondents stated that units began focusing more on building reserves, and four wrote that their implementation led units to engage in more space sharing to mitigate facilities costs. Specifically, one school leader responded, “Leaders throughout the University are more cognizant that space is a costly resource; it's not a ‘free good.’” Respondents also cited harmful effects of implementing RCM, with 13 stating that implementation led to more of a “money focus,” 10 saying that it led to a focus on money over mission, and two stating that it increased pressure to pass costs onto students.

Attention to central unit resources and funding was crucial for respondents. While six respondents said RCM led to decreased funding for central units and five respondents (four of whom were from schools) said they would increase funding for central units if they could make changes to their RCM models, 39 respondents cited concerns about the cost of central administration, as one central executive wrote:

> While the university generally bought into the RCM concept, an object of controversy has been the degree of "skim" that upper administration takes from student credit hour production to, in effect, run the university. It was deeper than

> many Deans had anticipated, especially those most enthusiastic about adopting RCM.

Thirteen respondents wrote that they would exert more control over central costs if they could make changes to their RCM models. Fifteen said there was too little accountability for central units and their costs, including one mid-level school leader, who wrote, “There is still far too little accountability for support unit budgets. We did not create the right mechanisms to control those costs, which seem to be rising annually. The support [unit] budgets are not as transparent as the academic unit budgets.” A central executive echoed this sentiment, writing, “Lack of transparency and understanding of service provided by central has led to mistrust.” Another concern related to central was relayed by four respondents, who cited as a negative feature of their models that the revenue-generating units were being overburdened by unfunded mandates from central administration, including one senior central leader who wrote:

> There was an extremely large disconnect between what senior leaders directed units to do, and what funding was available. I.e., Provost says to make "X" hires due to the outstanding research in the unit. No funding flows with the hires, so large deficits are incurred.

A senior school leader agreed, writing:

> Messaging from central administration is that colleges have full control over their budgets, then central leadership make decisions (i.e. allocations to financial aid) and mandate programs (i.e. annual salary increases) and pass the costs to the colleges without any input from the colleges.

Others wrote of the impact of state funding on the success of their RCM implementation, citing the changes in state funding as a hindrance to success (n = 5) and writing that the future of RCM at their institutions was somewhat uncertain and dependent upon the nature and size of anticipated cuts in state appropriations (n = 9). One mid-level central administrator wrote, “Our model was not designed or built to deal with budget cuts, so I wonder if it will survive through the 1st state budget cut,” thus highlighting the important role accounting for changes in state funding plays in the success or failure of RCM models at public institutions.

Continuous Improvement

Only 44 percent of respondents at least somewhat agreed that their institution had key performance indicators that were regularly monitored and addressed. Eleven respondents (all from school/college units) from four institutions wrote that their RCM models were poorly implemented. Continuous improvement of the models, especially if initially implemented poorly, was on the minds of the respondents, as one senior school leader wrote, “The rollout process was excellent - lots of input and a team of excellent financial analysts. If we had continued to make adjustments in years 3 and onward, we would have had true success.” Three respondents advised future implementers to review their models post-implementation, while three cautioned future implementers to wait to make changes to their models, as written by one senior central administrator, “Keep the model predictable and agree to wait to make changes to model only after several years of implementation.” Eight said their RCM models needed to be reviewed, while fourteen said their model was under review currently. Five wrote that a negative feature of their RCM model was that it was not stabilized, and two said they would stabilize the model if

given the chance to change. Regarding what he/she would change about his/her RCM model if given the chance, one mid-level school leader focused on the need for model stability, writing, “Freeze all changes for at least two years so that units can better define strategy to respond to and exploit the many benefits of RCM. We feel like we are chasing the changes rather than taking a long term view.” Another mid-level school leader echoed this point, writing, “The model (specifics) is constantly in flux. The whole University is under the shadow of correcting its model to best practices which clearly have been ignored to some extent in the past.”

Future of RCM at Represented Institutions

As shown in the survey instrument in Appendix D, participants were asked what they thought was the future of RCM at their institutions. Twenty-one participants from six of the seven institutions (all except NU) responded that the model was there to stay, and three responded that it was unfortunate, but the model was there to stay. Three respondents emphasized the investment made to bring RCM about, including one senior school leader, who wrote, “RCM has a great deal of value and the investment made to bring it on board is tremendous. We should not throw the baby out with the bathwater, but sincerely listen to each other and improve it.” While five respondents said that RCM fit well with their institution and five said their institution needed the model, five said there were no other better alternatives and 11 said the model might (or should) be scrapped, including one mid-level school leader who wrote, “I think it may be either dismantled or toned down. It was the brainchild of [a single university leader] who has since left the University and continued unenthusiastically by his successor.” 45 respondents thought the model would continue in some form, with modifications,

including three who thought the model would be simplified and one who expressed concerns that his/her RCM model would get more complicated over time. One dean commented that he/she believed the model would continue, albeit with continuing issues, writing, “Most likely we will accept a flawed model rather than to fix it properly. A flawed RCM model is better than the legacy model.” Five respondents wrote that the model was not liked by the faculty and/or department heads, with one school executive writing, “Even though heads and directors of academic units have been schooled on RCM over and over again, they still don't understand it. The faculty hate it even though they have garnered more resources through its implementation.” A senior school leader from the same institution added, “A majority of academic unit heads (directors and department heads) have given RCM a vote of no confidence after 3 years.” A faculty member shared:

> I think RCM is perceived as good in upper administration, and transparent between central administration and the college [units]. But there is a lack of transparency in many colleges between the colleges and departments. A few colleges have laid out clearly to their departments how funds will be disbursed but for many it is opaque and frustrating. That is why most [department chairs] and directors don't like it, along with the perception that it has created a suspicious, vicious, backstabbing competitive environment with a race for the bottom. At least that is the perception by most faculty and heads on campus. Upper admin is happy with it and lower echelons, for the most part, despise it.

Nineteen respondents said they were uncertain what the future would hold for RCM at their institutions, with one senior school leader adding, “It is a ‘deflated balloon.’”

Opinions of RCM often corresponded to how well respondents' units fared in their institutions' RCM models, with one senior central leader writing, "There are winners and losers in RCM. Winners generally are more positive about it and losers think it's a broken failed system." As one dean, whose school has done well under RCM, wrote, "Best thing we have done in 30 years," while another dean noted, "'we are currently running a deficit in my college that did not exist under the old accounting system." One mid-level school administrator who could not list any positive effects of RCM and instead wrote, "Unfortunately at this time my units have not received any positive effects from RCM."

Institutional Profiles

Of the seven institutions represented in the study, four (IU, BU, KU, TU) had response rates of 15 percent or more and had at least 10 completed surveys; their results are described below.

Iota University. IU was considered an older implementer, having implemented during fiscal years 2011 to 2013. As shown in Table 27, despite having implemented at least five fiscal years prior to the survey, 56 percent of the respondents (n = 10) from IU disagreed that the institution had clear and worthwhile incentives built into its RCM model.

Table 27

IU Responses to Survey Questions Relating to Implementation of RCM Practices

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	7 (39%)	8 (44%)	2 (11%)	1 (6%)	0 (0%)	0 (0%)	0 (0%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	1 (6%)	5 (28%)	3 (17%)	4 (22%)	0 (0%)	5 (28%)	0 (0%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	2 (11%)	7 (39%)	6 (33%)	0 (0%)	3 (17%)	0 (0%)	0 (0%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	2 (11%)	6 (33%)	7 (39%)	1 (6%)	2 (11%)	0 (0%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	1 (6%)	6 (33%)	6 (33%)	0 (0%)	3 (17%)	2 (11%)	0 (0%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	3 (17%)	4 (22%)	8 (44%)	1 (6%)	1 (6%)	1 (6%)	0 (0%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	4 (22%)	8 (44%)	4 (22%)	1 (6%)	0 (0%)	1 (6%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	0 (0%)	2 (11%)	5 (28%)	1 (6%)	5 (28%)	4 (22%)	1 (6%)

Table 28 shows that IU respondents did not disagree with the statement that direct costs were being attributed to the units that generated them (M = 1.8, SD = 0.9) and were much less in agreement that there were clear and worthwhile incentives built into their RCM model (M = 4.4, SD = 1.5). Only 39 percent of IU respondents thought that there were clear incentives for units that practiced sound financial decision making (n = 7).

Table 28

IU Descriptive Statistics for Survey Questions Relating to Implementation of RCM Practices

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	18	1	4	1.8	2.0	0.9	0.7
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	18	1	6	3.7	3.5	1.7	2.9
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	18	1	5	2.7	2.5	1.2	1.5
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	18	1	5	2.7	3.0	1.1	1.3
People at all levels of my institution make decisions that affect the overall direction of the institution.	18	1	6	3.2	3.0	1.5	2.3
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	18	1	6	2.8	3.0	1.3	1.7
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	18	1	6	2.3	2.0	1.2	1.5
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	18	2	7	4.4	5.0	1.5	2.4

Tables 29 and 30 contain the responses and descriptive statistics related to the successful implementation of RCM for IU respondents. No IU respondents disagreed that central leaders were supportive of the change to RCM (M = 1.5, SD = 0.9) or that the university community was informed about the change (M = 2.1, SD = 1.0). Only one respondent (6%) did not agree that the institution was successful in its implementation. Only 33 percent of IU respondents agreed that the institution provided training for all of its employees (n = 6).

Table 29

IU Responses to Survey Questions Relating to Successful Implementation of RCM

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	1 (6%)	6 (33%)	10 (56%)	0 (0%)	0 (0%)	1 (6%)	0 (0%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	2 (11%)	6 (33%)	8 (44%)	1 (6%)	1 (6%)	0 (0%)	0 (0%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	2 (11%)	9 (50%)	5 (28%)	0 (0%)	1 (6%)	1 (6%)	0 (0%)
Central leaders at my institution were supportive of the change to responsibility center management.	12 (67%)	4 (22%)	1 (6%)	1 (6%)	0 (0%)	0 (0%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	2 (11%)	5 (28%)	3 (17%)	3 (17%)	4 (22%)	1 (6%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	1 (6%)	6 (33%)	7 (39%)	1 (6%)	2 (11%)	1 (6%)	0 (0%)
My institution implemented responsibility center management in line with its strategy and timeline.	1 (6%)	9 (50%)	3 (17%)	1 (6%)	3 (17%)	1 (6%)	0 (0%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	2 (11%)	4 (22%)	6 (33%)	0 (0%)	5 (28%)	1 (6%)	0 (0%)
The university community was informed about the change to responsibility center management and its implications.	6 (33%)	6 (33%)	4 (22%)	2 (11%)	0 (0%)	0 (0%)	0 (0%)
My institution provides ample training for employees at all levels of the institution.	0 (0%)	2 (11%)	4 (22%)	3 (17%)	2 (11%)	5 (28%)	2 (11%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	1 (6%)	3 (17%)	3 (17%)	2 (11%)	5 (28%)	3 (17%)	1 (6%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	1 (6%)	4 (22%)	4 (22%)	1 (6%)	5 (28%)	1 (6%)	2 (11%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	1 (6%)	1 (6%)	7 (39%)	4 (22%)	3 (17%)	2 (11%)	0 (0%)
My institution's version of responsibility center management was adapted to meet institutional needs.	2 (11%)	9 (50%)	2 (11%)	2 (11%)	2 (11%)	1 (6%)	0 (0%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	2 (11%)	4 (22%)	9 (50%)	0 (0%)	2 (11%)	1 (6%)	0 (0%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	2 (11%)	2 (11%)	10 (56%)	0 (0%)	3 (17%)	0 (0%)	1 (6%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	0 (0%)	4 (22%)	6 (33%)	5 (28%)	1 (6%)	2 (11%)	0 (0%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	1 (6%)	9 (50%)	3 (17%)	4 (22%)	0 (0%)	1 (6%)	0 (0%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	0 (0%)	5 (28%)	6 (33%)	4 (22%)	3 (17%)	0 (0%)	0 (0%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	2 (11%)	8 (44%)	6 (33%)	1 (6%)	1 (6%)	0 (0%)	0 (0%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	0 (0%)	5 (28%)	6 (33%)	4 (22%)	2 (11%)	1 (6%)	0 (0%)

Table 30

IU Descriptive Statistics for Survey Questions Relating to the Successful Implementation of RCM

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
My institution successfully implemented its version of responsibility center management.	18	1	6	2.7	3.0	1.0	1.0
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	18	1	5	2.6	3.0	1.0	1.0
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	18	1	6	2.6	2.0	1.2	1.6
Central leaders at my institution were supportive of the change to responsibility center management.	18	1	4	1.5	1.0	0.9	0.7
School/college leaders at my institution were supportive of the change to responsibility center management.	18	1	6	3.3	3.0	1.5	2.3
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	18	1	6	3.0	3.0	1.3	1.6
My institution implemented responsibility center management in line with its strategy and timeline.	18	1	6	2.9	2.0	1.4	2.1
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	18	1	6	3.3	3.0	1.5	2.3
The university community was informed about the change to responsibility center management and its implications.	18	1	4	2.1	2.0	1.0	1.0
My institution provides ample training for employees at all levels of the institution.	18	2	7	4.6	4.5	1.7	2.7
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	18	1	7	4.1	4.5	1.7	2.9
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	18	1	7	3.9	3.5	1.8	3.3
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	18	1	6	3.7	3.5	1.3	1.7
My institution's version of responsibility center management was adapted to meet institutional needs.	18	1	6	2.8	2.0	1.4	2.1
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	18	1	6	2.9	3.0	1.3	1.7
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	18	1	7	3.2	3.0	1.5	2.2
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	18	2	6	3.5	3.0	1.2	1.6
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	18	1	6	2.8	2.0	1.2	1.5
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	18	2	5	3.3	3.0	1.1	1.2
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	18	1	5	2.5	2.0	1.0	1.0
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	18	2	6	3.3	3.0	1.2	1.4

Beta University. BU was considered a newer implementer, having implemented in fiscal year 2016 or later. BU had the highest response rate (32%) and absolute number of responses (n = 45) of all represented institutions. As shown in Table 31, despite being a newer implementer, 54 percent (n = 24) of the respondents from BU agreed that the institution had clear and worthwhile incentives built into its RCM model, while only 31 percent disagreed (n = 14). Table 32 contains the descriptive statistics relating to BU responses about implementation of RCM practices and highlights that the statement about clear and worthwhile incentives in the RCM model was the only one for which no BU respondent said they strongly agreed.

Table 31

BU Responses to Survey Questions Relating to Implementation of RCM Practices

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	15 (33%)	19 (42%)	4 (9%)	3 (7%)	1 (2%)	3 (7%)	0 (0%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	3 (7%)	15 (33%)	10 (22%)	5 (11%)	8 (18%)	2 (4%)	2 (4%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	6 (13%)	16 (36%)	10 (22%)	4 (9%)	5 (11%)	4 (9%)	0 (0%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	9 (20%)	23 (51%)	10 (22%)	2 (4%)	1 (2%)	0 (0%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	1 (2%)	7 (16%)	14 (31%)	7 (16%)	9 (20%)	6 (13%)	1 (2%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	4 (9%)	18 (40%)	15 (33%)	3 (7%)	3 (7%)	0 (0%)	2 (4%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	8 (18%)	18 (40%)	15 (33%)	3 (7%)	0 (0%)	1 (2%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	0 (0%)	8 (18%)	16 (36%)	7 (16%)	8 (18%)	5 (11%)	1 (2%)

Table 32

BU Descriptive Statistics for Survey Questions Relating to Implementation of RCM Practices

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	45	1	6	2.2	2.0	1.8	3.4
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	45	1	7	3.3	3.0	1.6	2.5
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	45	1	6	3.0	3.0	1.5	2.3
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	45	1	5	2.2	2.0	0.9	0.8
People at all levels of my institution make decisions that affect the overall direction of the institution.	45	1	7	3.8	4.0	1.4	2.1
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	45	1	7	2.8	3.0	1.3	1.8
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	45	1	6	2.4	2.0	1.0	1.0
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	45	2	7	3.8	3.0	1.4	1.9

Tables 33 and 34 contain the responses and descriptive statistics related to the successful implementation of RCM for BU respondents. No BU respondents disagreed that central leaders were supportive of the change to RCM (M = 1.7, SD = 0.7) or that the university community was informed about the change (M = 1.8, SD = 0.6). Sixty-nine percent (n = 31) of respondents agreed that the institution was successful in its implementation. Only 33 percent of BU respondents agreed that the institution provided training for all of its employees (n = 15). The vast majority of BU respondents thought the institution's departments had modified their behaviors because of RCM implementation (87%, n = 39); however, only 49 percent (n = 22) agreed that the departments had embraced the change.

Table 33

BU Responses to Survey Questions Relating to Successful Implementation of RCM

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	4 (9%)	21 (47%)	6 (13%)	8 (18%)	5 (11%)	0 (0%)	1 (2%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	3 (7%)	10 (22%)	16 (36%)	3 (7%)	9 (20%)	3 (7%)	1 (2%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	1 (2%)	18 (40%)	11 (24%)	5 (11%)	6 (13%)	4 (9%)	0 (0%)
Central leaders at my institution were supportive of the change to responsibility center management.	18 (40%)	23 (51%)	3 (7%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	3 (7%)	12 (27%)	19 (42%)	5 (11%)	4 (9%)	2 (4%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	9 (20%)	12 (27%)	16 (36%)	3 (7%)	3 (7%)	1 (2%)	1 (2%)
My institution implemented responsibility center management in line with its strategy and timeline.	6 (13%)	20 (44%)	10 (22%)	3 (7%)	3 (7%)	2 (4%)	1 (2%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	2 (4%)	9 (20%)	11 (24%)	12 (27%)	6 (13%)	4 (9%)	1 (2%)
The university community was informed about the change to responsibility center management and its implications.	15 (33%)	25 (56%)	5 (11%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
My institution provides ample training for employees at all levels of the institution.	0 (0%)	7 (16%)	8 (18%)	7 (16%)	12 (27%)	9 (20%)	2 (4%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	5 (11%)	13 (29%)	11 (24%)	6 (13%)	6 (13%)	4 (9%)	0 (0%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	3 (7%)	11 (24%)	9 (20%)	6 (13%)	11 (24%)	4 (9%)	1 (2%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	4 (9%)	7 (16%)	8 (18%)	14 (31%)	7 (16%)	2 (4%)	3 (7%)
My institution's version of responsibility center management was adapted to meet institutional needs.	8 (18%)	20 (44%)	10 (22%)	1 (2%)	4 (9%)	1 (2%)	1 (2%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	3 (7%)	13 (29%)	12 (27%)	9 (20%)	5 (11%)	3 (7%)	0 (0%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	1 (2%)	8 (18%)	17 (38%)	8 (18%)	7 (16%)	4 (9%)	0 (0%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	3 (7%)	9 (20%)	15 (33%)	11 (24%)	2 (4%)	5 (11%)	0 (0%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	12 (27%)	16 (36%)	9 (20%)	5 (11%)	0 (0%)	3 (7%)	0 (0%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	1 (2%)	7 (16%)	14 (31%)	6 (13%)	9 (20%)	5 (11%)	3 (7%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	11 (24%)	17 (38%)	11 (24%)	3 (7%)	2 (4%)	1 (2%)	0 (0%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	3 (7%)	14 (31%)	9 (20%)	7 (16%)	11 (24%)	1 (2%)	0 (0%)

Table 34

BU Descriptive Statistics for Survey Questions Relating to the Successful Implementation of RCM

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
My institution successfully implemented its version of responsibility center management.	45	1	7	2.8	2.0	1.3	1.8
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	45	1	7	3.4	3.0	1.5	2.2
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	45	1	6	3.2	3.0	1.4	1.9
Central leaders at my institution were supportive of the change to responsibility center management.	45	1	4	1.7	2.0	0.7	0.5
School/college leaders at my institution were supportive of the change to responsibility center management.	45	1	6	3.0	3.0	1.2	1.4
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	45	1	7	2.7	3.0	1.4	1.9
My institution implemented responsibility center management in line with its strategy and timeline.	45	1	7	2.7	2.0	1.4	2.0
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	45	1	7	3.6	4.0	1.4	2.0
The university community was informed about the change to responsibility center management and its implications.	45	1	3	1.8	2.0	0.6	0.4
My institution provides ample training for employees at all levels of the institution.	45	2	7	4.3	5.0	1.5	2.2
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	45	1	6	3.2	3.0	1.5	2.2
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	45	1	7	3.6	3.0	1.6	2.5
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	45	1	7	3.7	4.0	1.6	2.5
My institution's version of responsibility center management was adapted to meet institutional needs.	45	1	7	2.6	2.0	1.4	1.9
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	45	1	6	3.2	3.0	1.3	1.8
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	45	1	6	3.5	3.0	1.3	1.6
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	45	1	6	3.3	3.0	1.3	1.8
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	45	1	6	2.4	2.0	1.4	1.8
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	45	1	7	3.9	4.0	1.6	2.4
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	45	1	6	2.4	2.0	1.2	1.4
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	45	1	6	3.3	3.0	1.4	1.9

Kappa University. KU was considered a newer implementer, having implemented in fiscal year 2016 or later. KU had 20 responses and a response rate of 23 percent. As shown in Table 35, only 20 percent (n = 5) of the respondents from KU agreed that the institution had clear and worthwhile incentives built into its RCM model, while 50 percent disagreed (n = 10). While the vast majority of KU respondents agreed that direct costs were being attributed to units (85%, n = 17), a majority of respondents disagreed that indirect costs were being attributed (60%, n = 12). The vast majority of KU respondents agreed that central executive leaders make institutional decisions most often (90%, n = 18). Table 36 contains the descriptive statistics relating to KU responses about implementation of RCM practices and highlights that no respondent disagreed that central executive leaders were making most of the decisions (M = 2.1, SD = 0.9). Conversely, respondents did not feel that people at all levels of the institution had a large role in decision making (M = 5.2, SD = 1.4).

Table 35

KU Responses to Survey Questions Relating to Implementation of RCM Practices

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	5 (25%)	9 (45%)	3 (15%)	2 (10%)	1 (5%)	0 (0%)	0 (0%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	0 (0%)	2 (10%)	3 (15%)	3 (15%)	8 (40%)	3 (15%)	1 (5%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	2 (10%)	2 (10%)	7 (35%)	1 (5%)	5 (25%)	3 (15%)	0 (0%)

Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	5 (25%)	11 (55%)	2 (10%)	2 (10%)	0 (0%)	0 (0%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	0 (0%)	1 (5%)	1 (5%)	4 (20%)	6 (30%)	3 (15%)	5 (25%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	0 (0%)	3 (15%)	11 (55%)	1 (5%)	1 (5%)	4 (20%)	0 (0%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	0 (0%)	6 (30%)	9 (45%)	2 (10%)	1 (5%)	2 (10%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	1 (5%)	1 (5%)	3 (15%)	5 (25%)	5 (25%)	5 (25%)	0 (0%)

Table 36

KU Descriptive Statistics for Survey Questions Relating to Implementation of RCM Practices

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	20	1	5	2.3	2.0	1.1	1.3
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	20	2	7	4.5	5.0	1.4	1.8
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	20	1	6	3.7	3.0	1.6	2.5
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	20	1	4	2.1	2.0	0.9	0.8
People at all levels of my institution make decisions that affect the overall direction of the institution.	20	2	7	5.2	5.0	1.4	2.1
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	20	2	6	3.6	3.0	1.4	1.9
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	20	2	6	3.2	3.0	1.2	1.5
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	20	1	6	4.4	4.5	1.4	2.0

Tables 37 and 38 contain the responses and descriptive statistics related to the successful implementation of RCM for KU respondents. Only 30 percent (n = 6) of respondents agreed that the institution had successfully implemented RCM, while 40 percent (n = 8) disagreed and 30 percent (n = 6) neither agreed nor disagreed. Only 10 percent (n = 2) of

KU respondents agreed that the institution had a clear operating manual and procedures related to its RCM model and was operating in accordance with both (M = 5.3, SD = 1.7). Only 15 percent of KU respondents agreed that the institution provided training for all of its employees (n = 3). The vast majority of KU respondents thought the institution had increased its efforts to diversify its funding sources (90%, n = 18).

Table 37

KU Responses to Survey Questions Relating to Successful Implementation of RCM

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	0 (0%)	2 (10%)	4 (20%)	6 (30%)	2 (10%)	3 (15%)	3 (15%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	1 (5%)	6 (30%)	6 (30%)	2 (10%)	4 (20%)	1 (5%)	0 (0%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	0 (0%)	5 (25%)	8 (40%)	4 (20%)	2 (10%)	1 (5%)	0 (0%)
Central leaders at my institution were supportive of the change to responsibility center management.	5 (25%)	5 (25%)	7 (35%)	1 (5%)	2 (10%)	0 (0%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	2 (10%)	4 (20%)	7 (35%)	2 (10%)	4 (20%)	1 (5%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	0 (0%)	5 (25%)	3 (15%)	2 (10%)	6 (30%)	3 (15%)	1 (5%)
My institution implemented responsibility center management in line with its strategy and timeline.	0 (0%)	2 (10%)	2 (10%)	4 (20%)	6 (30%)	3 (15%)	3 (15%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	1 (5%)	1 (5%)	0 (0%)	4 (20%)	3 (15%)	6 (30%)	5 (25%)
The university community was informed about the change to responsibility center management and its implications.	3 (15%)	7 (35%)	7 (35%)	0 (0%)	2 (10%)	1 (5%)	0 (0%)
My institution provides ample training for employees at all levels of the institution.	0 (0%)	1 (5%)	2 (10%)	6 (30%)	4 (20%)	4 (20%)	3 (15%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	0 (0%)	5 (25%)	6 (30%)	3 (15%)	3 (15%)	3 (15%)	0 (0%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	0 (0%)	2 (10%)	1 (5%)	7 (35%)	5 (25%)	4 (20%)	1 (5%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	3 (15%)	7 (35%)	4 (20%)	3 (15%)	2 (10%)	1 (5%)	0 (0%)
My institution's version of responsibility center management was adapted to meet institutional needs.	3 (15%)	7 (35%)	7 (35%)	2 (10%)	0 (0%)	1 (5%)	0 (0%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	2 (10%)	4 (20%)	4 (20%)	9 (45%)	0 (0%)	1 (5%)	0 (0%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	1 (5%)	3 (15%)	9 (45%)	3 (15%)	2 (10%)	2 (10%)	0 (0%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	1 (5%)	4 (20%)	5 (25%)	6 (30%)	3 (15%)	1 (5%)	0 (0%)

My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	4 (20%)	7 (35%)	7 (35%)	1 (5%)	1 (5%)	0 (0%)	0 (0%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	0 (0%)	3 (15%)	4 (20%)	5 (25%)	3 (15%)	4 (20%)	1 (5%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	0 (0%)	6 (30%)	5 (25%)	3 (15%)	4 (20%)	1 (5%)	1 (5%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	0 (0%)	3 (15%)	5 (25%)	6 (30%)	1 (5%)	5 (25%)	0 (0%)

Table 38

KU Descriptive Statistics for Survey Questions Relating to the Successful Implementation of RCM

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
My institution successfully implemented its version of responsibility center management.	20	2	7	4.5	4.0	1.6	2.6
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	20	1	6	3.3	3.0	1.4	1.9
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	20	2	6	3.3	3.0	1.1	1.3
Central leaders at my institution were supportive of the change to responsibility center management.	20	1	5	2.5	2.5	1.2	1.5
School/college leaders at my institution were supportive of the change to responsibility center management.	20	1	6	3.3	3.0	1.4	2.0
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	20	2	7	4.1	4.5	1.6	2.6
My institution implemented responsibility center management in line with its strategy and timeline.	20	2	7	4.8	5.0	1.5	2.3
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	20	1	7	5.3	6.0	1.7	2.8
The university community was informed about the change to responsibility center management and its implications.	20	1	6	2.7	2.5	1.3	1.8
My institution provides ample training for employees at all levels of the institution.	20	2	7	4.9	5.0	1.4	2.0
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	20	2	6	3.7	3.0	1.4	2.0
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	20	2	7	4.6	4.5	1.3	1.7
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	20	1	6	2.9	2.5	1.4	2.0
My institution's version of responsibility center management was adapted to meet institutional needs.	20	1	6	2.6	2.5	1.2	1.4
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	20	1	6	3.2	3.5	1.2	1.5

My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	20	1	6	3.4	3.0	1.3	1.7
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	20	1	6	3.5	3.5	1.3	1.6
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	20	1	5	2.4	2.0	1.0	1.1
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	20	2	7	4.2	4.0	1.5	2.3
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	20	2	7	3.6	3.0	1.5	2.3
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	20	2	6	4.0	4.0	1.4	2.0

Tau University. TU was considered a newer implementer, having implemented in fiscal year 2016 or later. TU had the second-highest number of responses (n = 34) and response rate (27%), behind only BU, another newer implementer. As shown in Table 39, 32 percent (n = 11) of the respondents from TU agreed that the institution had clear and worthwhile incentives built into its RCM model, while 59 percent disagreed (n = 20). The majority of KU respondents agreed that direct costs were being attributed to units (97%, n = 33), as well as direct revenues (97%, n = 33) and indirect costs (74%, n = 25). The vast majority of TU respondents agreed that central executive leaders make institutional decisions most often (94%, n = 32). A majority (59%, n = 20) disagreed that their institution had clear and worthwhile incentives for units that practiced sound financial decision making. Table 40 contains the descriptive statistics relating to TU responses about implementation of RCM practices and highlights that no respondent disagreed that direct revenues were being attributed to the units that generated them (M = 1.7, SD = 0.7). Conversely, no respondents strongly agreed that their institution had worthwhile incentives (M = 4.7, SD = 1.7).

Table 39

TU Responses to Survey Questions Relating to Implementation of RCM Practices

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	11 (32%)	18 (53%)	4 (12%)	0 (0%)	0 (0%)	0 (0%)	1 (3%)
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	3 (9%)	16 (47%)	6 (18%)	2 (6%)	2 (6%)	4 (12%)	1 (3%)
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	13 (38%)	18 (53%)	2 (6%)	1 (3%)	0 (0%)	0 (0%)	0 (0%)
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	12 (35%)	15 (44%)	5 (15%)	1 (3%)	0 (0%)	1 (3%)	0 (0%)
People at all levels of my institution make decisions that affect the overall direction of the institution.	1 (3%)	5 (15%)	3 (9%)	4 (12%)	10 (29%)	8 (24%)	3 (9%)
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	1 (3%)	12 (35%)	11 (32%)	1 (3%)	3 (9%)	6 (18%)	0 (0%)
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	3 (9%)	14 (41%)	14 (41%)	1 (3%)	1 (3%)	1 (3%)	0 (0%)
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	0 (0%)	4 (12%)	7 (21%)	3 (9%)	7 (21%)	7 (21%)	6 (18%)

Table 40

TU Descriptive Statistics for Survey Questions Relating to Implementation of RCM Practices

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	34	1	7	1.9	2.0	1.1	1.2
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	34	1	7	3.0	2.0	1.7	2.7
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	34	1	4	1.7	2.0	0.7	0.5

Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	34	1	6	2.0	2.0	1.1	1.1
People at all levels of my institution make decisions that affect the overall direction of the institution.	34	1	7	4.6	5.0	1.7	2.7
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	34	1	6	3.3	3.0	1.6	2.4
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	34	1	6	2.6	2.5	1.0	1.0
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	34	2	7	4.7	5.0	1.7	2.9

Tables 41 and 42 contain the responses and descriptive statistics related to the successful implementation of RCM for TU respondents. Only 18 percent (n = 6) of respondents agreed that the institution had successfully implemented RCM, while 68 percent (n = 23) disagreed and 15 percent (n = 5) neither agreed nor disagreed. Only 15 percent (n = 5) of TU respondents agreed that the institution had a clear operating manual and procedures related to its RCM model and was operating in accordance with both (M = 5.5). Only 12 percent of TU respondents agreed that the institution provided training for all of its employees (n = 4). Among the other institutions represented in the sample, TU had the most statements with medians of 5 (somewhat disagree) to 6 (disagree), including the statements about the success of the implementation of RCM, the existence of and operation in accordance with a clear operational manual and procedures, the provision of training for all employees, the sufficiency of resources devoted to the transition to and maintenance of RCM, the sufficiency of resources to operate RCM effectively, the monitoring of key performance indicators, and the increase in prevalence of innovative and entrepreneurial activities since implementation of RCM.

Table 41

TU Responses to Survey Questions Relating to Successful Implementation of RCM

Survey Question	Response						
	Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither Agree or Disagree (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
My institution successfully implemented its version of responsibility center management.	0 (0%)	4 (12%)	2 (6%)	5 (15%)	12 (35%)	3 (9%)	8 (24%)
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	2 (6%)	7 (21%)	7 (21%)	3 (9%)	6 (18%)	7 (21%)	2 (6%)
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	0 (0%)	12 (35%)	11 (32%)	3 (9%)	2 (6%)	4 (12%)	2 (6%)
Central leaders at my institution were supportive of the change to responsibility center management.	8 (24%)	13 (38%)	6 (18%)	5 (15%)	1 (3%)	1 (3%)	0 (0%)
School/college leaders at my institution were supportive of the change to responsibility center management.	2 (6%)	4 (12%)	12 (35%)	7 (21%)	5 (15%)	4 (12%)	0 (0%)
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	0 (0%)	5 (15%)	10 (29%)	2 (6%)	8 (24%)	6 (18%)	3 (9%)
My institution implemented responsibility center management in line with its strategy and timeline.	1 (3%)	5 (15%)	8 (24%)	4 (12%)	10 (29%)	4 (12%)	2 (6%)
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	0 (0%)	0 (0%)	5 (15%)	1 (3%)	9 (26%)	10 (29%)	9 (26%)
The university community was informed about the change to responsibility center management and its implications.	5 (15%)	13 (38%)	11 (32%)	2 (6%)	1 (3%)	2 (6%)	0 (0%)
My institution provides ample training for employees at all levels of the institution.	0 (0%)	0 (0%)	4 (12%)	3 (9%)	5 (15%)	16 (47%)	6 (18%)
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	0 (0%)	4 (12%)	4 (12%)	2 (6%)	7 (21%)	10 (29%)	7 (21%)
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	0 (0%)	5 (15%)	2 (6%)	4 (12%)	7 (21%)	9 (26%)	7 (21%)
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	0 (0%)	2 (6%)	7 (21%)	3 (9%)	4 (12%)	12 (35%)	6 (18%)
My institution's version of responsibility center management was adapted to meet institutional needs.	1 (3%)	9 (26%)	6 (18%)	5 (15%)	4 (12%)	6 (18%)	3 (9%)
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	0 (0%)	4 (12%)	10 (29%)	7 (21%)	4 (12%)	5 (15%)	4 (12%)
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	1 (3%)	5 (15%)	5 (15%)	7 (21%)	7 (21%)	8 (24%)	1 (3%)
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	1 (3%)	7 (21%)	10 (29%)	8 (24%)	5 (15%)	2 (6%)	1 (3%)
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	2 (6%)	10 (29%)	13 (38%)	5 (15%)	2 (6%)	1 (3%)	1 (3%)
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	0 (0%)	5 (15%)	8 (24%)	6 (18%)	6 (18%)	3 (9%)	6 (18%)
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	1 (3%)	8 (24%)	11 (32%)	5 (15%)	6 (18%)	2 (6%)	1 (3%)
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	0 (0%)	1 (3%)	6 (18%)	9 (26%)	7 (21%)	8 (24%)	3 (9%)

Table 42

TU Descriptive Statistics for Survey Questions Relating to the Successful Implementation of RCM

Survey Question	*N*	*Min*	*Max*	*M*	*Mdn*	*SD*	*σ*
My institution successfully implemented its version of responsibility center management.	34	2	7	4.9	5.0	1.6	2.5
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	34	1	7	4.0	4.0	1.8	3.2
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	34	2	7	3.4	3.0	1.6	2.6
Central leaders at my institution were supportive of the change to responsibility center management.	34	1	6	2.4	2.0	1.3	1.6
School/college leaders at my institution were supportive of the change to responsibility center management.	34	1	6	3.6	3.0	1.4	1.9
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	34	2	7	4.3	4.5	1.6	2.6
My institution implemented responsibility center management in line with its strategy and timeline.	34	1	7	4.1	4.0	1.6	2.4
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	34	3	7	5.5	6.0	1.3	1.8
The university community was informed about the change to responsibility center management and its implications.	34	1	6	2.6	2.0	1.3	1.6
My institution provides ample training for employees at all levels of the institution.	34	3	7	5.5	6.0	1.2	1.5
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	34	2	7	5.1	5.5	1.7	2.8
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	34	2	7	5.0	5.0	1.7	2.8
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	34	2	7	5.0	6.0	1.6	2.6
My institution's version of responsibility center management was adapted to meet institutional needs.	34	1	7	3.9	4.0	1.8	3.2
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	34	2	7	4.2	4.0	1.6	2.5
My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	34	1	7	4.2	4.0	1.6	2.4
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	34	1	7	3.6	3.0	1.4	1.9
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	34	1	7	3.1	3.0	1.3	1.7
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	34	2	7	4.4	4.0	1.7	2.9
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	34	1	7	3.5	3.0	1.4	2.0
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	34	2	7	4.7	5.0	1.3	1.8

Comparing Institutional Responses. Among the institutions with response rates of greater than 15 percent and more than 10 responses, there were significant differences in the ways participants responded to statements about RCM practices and the success of their implementations. Table 43 shows the results of chi square and Cramer's *V* testing using the four institutions (BU, IU, KU, and TU) for statements related to RCM practices. Significant results emerged for several statements about the implementation of RCM practices, including the attribution of indirect costs, χ^2 (18, N = 117) = 30.258, p = .035, V = .294; the attribution of direct revenues, χ^2 (15, N = 117) = 38.334, p = .001, V = .330; and bottom-up decision making, χ^2 (18, N = 117) = 32.018, p = .022, V = .302, thus revealing that significant differences existed among the institutions tested.

Table 43

Results of Chi-square Test for BU, IU, KU, and TU for Questions Relating to Implementation of RCM Practices

Survey Question	χ^2*	df	*p*	*V*
Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	13.924	18	.734	.199
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	30.258	18	.035	.294
Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	38.334	15	.001	.330
Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	19.508	15	.192	.236

People at all levels of my institution make decisions that affect the overall direction of the institution.	32.018	18	.022	.302
The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	23.998	18	.155	.261
The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	13.374	15	.573	.195
My institution has clear and worthwhile incentives for units that practice sound financial decision making.	24.448	18	.141	.264

Note. *p<.05

The researcher used standardized residuals to analyze further the results for BU, IU, KU, and TU for the three questions that yielded significant *p* values in chi square tests, as described above. As shown in Table 44, respondents from KU strongly disagreed more often than expected that people at all levels of their institution made decisions that affected the overall direction of their institution. KU respondents also somewhat disagreed more often than expected that their institution was attributing indirect costs to the units that generated them. Respondents from TU strongly agreed more often than expected that direct revenues were being attributed to the units that generated them.

Table 44

Standardized Residuals for Significant Chi Square Results about RCM Practices for BU, IU, KU, and TU

		Institution			
Survey Question	Response	BU	IU	KU	TU
Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Strongly Agree (1)	.2	-.1	-1.1	.7
	Agree (2)	.1	-.3	-1.8	1.5
	Somewhat Agree (3)	.5	-.2	-.4	-.2
	Neither Agree nor Disagree (4)	-.2	1.3	.4	-1.0
	Somewhat Disagree (5)	.4	-1.7	**2.8**	-1.4
	Disagree (6)	-1.5	1.9	.4	.0
	Strongly Disagree (7)	.4	-.8	.4	-.2

Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Strongly Agree (1)	-1.0	-.8	-1.0	**2.4**
	Agree (2)	-.1	.1	-2.0	1.6
	Somewhat Agree (3)	.1	1.1	1.3	-2.0
	Neither Agree nor Disagree (4)	1.1	-1.0	.0	-.6
	Somewhat Disagree (5)	.0	.7	1.9	-1.9
	Disagree (6)	.8	-1.0	1.6	-1.4
People at all levels of my institution make decisions that affect the overall direction of the institution.	Strongly Agree (1)	-.1	.8	-.7	.1
	Agree (2)	-.1	1.8	-1.2	-.2
	Somewhat Agree (3)	1.6	1.2	-1.5	-1.5
	Neither Agree nor Disagree (4)	.5	-1.5	.9	-.2
	Somewhat Disagree (5)	-.5	-.6	.6	.7
	Disagree (6)	-.5	-.5	-.1	1.1
	Strongly Disagree (7)	-1.3	-1.2	**2.8**	.2

Note . Standardized residuals in bold are those that exceed +/- 2.

The statements related to successful implementation of RCM also yielded significant results in chi square and Cramer's *V* testing when comparing the responses of BU, IU, KU, and TU participants, as shown in Table 45. Of the 21 statements relating to successful RCM implementation, 11 yielded significant *p* values. Notably, two statements, relating to whether participants believed RCM had been implemented successfully, χ^2 (18, N = 117) = 66.449, $p < .001$, $V = .435$, and whether the institutions had clear operational manuals and procedures, χ^2 (18, N = 117) = 53.672, $p < .001$, V = .391, had *p* values less than .001.

Table 45

Results of Chi-square Test for BU, IU, KU, and TU for Questions Relating to Successful RCM Implementation

Survey Question	χ^2*	df	*p*	*V*
My institution successfully implemented its version of responsibility center management.	66.449	18	< .001	.435
Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	15.755	18	.610	.212
Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	20.515	18	.305	.242

Central leaders at my institution were supportive of the change to responsibility center management.	32.849	15	.005	.306
School/college leaders at my institution were supportive of the change to responsibility center management.	10.855	15	.763	.176
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	31.510	18	.025	.300
My institution implemented responsibility center management in line with its strategy and timeline.	34.717	18	.010	.314
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	53.672	18	< .001	.391
The university community was informed about the change to responsibility center management and its implications.	27.222	15	.027	.278
My institution provides ample training for employees at all levels of the institution.	22.039	15	.107	.251
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	33.274	18	.015	.308
My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	30.012	18	.037	.292
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	43.449	18	.001	.352
My institution's version of responsibility center management was adapted to meet institutional needs.	25.873	18	.103	.272
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	32.672	18	.018	.305

My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	23.580	18	.169	.259
My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	8.854	18	.963	.159
My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	21.680	18	.246	.249
My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	14.678	18	.684	.204
My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	24.505	18	.139	.264
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	37.560	18	.004	.327

Note. *p<.05

Follow-up analysis of standardized residuals confirmed numerous significant differences between the responses from representatives of the four institutions.

As shown in Table 46, TU employees were more negative than expected in their responses to several statements: they somewhat disagreed and strongly disagreed more often than expected that their institution had successfully implemented RCM, strongly disagreed more often than expected that their institution had a clear operational manual and procedures and was operating in accordance with both, strongly disagreed much more often than expected that their institution had devoted sufficient resources to operate its new financial model effectively, disagreed and strongly disagreed more often than expected that their institutional leaders had relevant performance indicators that were regularly monitored and addressed, strongly disagreed more often than expected that leaders worked to make changes when an aspect of the new financial model did not meet

the needs of the institution, and agreed less often and strongly disagreed more often than expected that the prevalence of innovative and entrepreneurial activities had increased since their RCM implementation. BU respondents were more positive in their responses: they agreed more than expected that their institution had successfully implemented RCM, strongly agreed more than expected that their institution had a clear and widely shared implementation strategy and timeline prior to implementation, and neither agreed nor disagreed more often than expected that their institution had a clear operational manual and procedures and was operating in accordance with both. Responses from KU were more mixed; they somewhat agreed more often than expected that central leaders were supportive of the change to RCM, agreed more often than expected that leaders in their institution had relevant performance indicators, and neither agreed nor disagreed more often than expected that their institution had sufficient resources to operate its new financial model effectively and that leaders worked to make changes if an aspect of the model did not meet institutional needs, but KU respondents also somewhat disagreed more often than expected that their university community was informed about the change to RCM and its implications. Respondents from IU, the only older implementer with a sufficient response rate, somewhat agreed more often than expected that their institution successfully implemented RCM and strongly agreed more often than expected that central leaders were supportive of the change.

Table 46

Standardized Residuals for Significant Chi Square Results about Successful RCM Implementation for BU, IU, KU, and TU

Survey Question	Response	Institution			
		BU	IU	KU	TU
My institution successfully implemented its version of responsibility center management.	Strongly Agree (1)	1.5	.3	-.9	-1.2
	Agree (2)	**2.3**	.4	-1.5	-1.8
	Somewhat Agree (3)	-.8	**3.6**	.1	-1.7
	Neither Agree nor Disagree (4)	.3	-1.7	1.5	-.2
	Somewhat Disagree (5)	-.9	-1.7	-.7	**2.8**
	Disagree (6)	-1.6	-.1	1.6	.7
	Strongly Disagree (7)	-1.7	-1.4	.7	**2.4**
Central leaders at my institution were supportive of the change to responsibility center management.	Strongly Agree (1)	.4	**2.1**	-.9	-1.3
	Agree (2)	1.4	-1.1	-1.0	.0
	Somewhat Agree (3)	-1.4	-1.0	**2.4**	.5
	Neither Agree nor Disagree (4)	-1.2	-.2	-.3	1.8
	Somewhat Disagree (5)	-1.1	-.7	2.1	.1
	Disagree (6)	-.6	-.4	-.4	1.3
Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Strongly Agree (1)	**2.6**	-.4	-1.3	-1.7
	Agree (2)	.4	.8	.1	-1.1
	Somewhat Agree (3)	.6	.6	-1.3	-.1
	Neither Agree nor Disagree (4)	.0	-.2	.5	-.2
	Somewhat Disagree (5)	-1.6	-.5	1.5	1.1
	Disagree (6)	-1.6	-.5	.8	1.6
	Strongly Disagree (7)	-.7	-.9	.2	1.3
My institution implemented responsibility center management in line with its strategy and timeline.	Strongly Agree (1)	1.7	-.2	-1.2	-.9
	Agree (2)	1.7	1.5	-1.7	-1.7
	Somewhat Agree (3)	.4	-.3	-1.0	.5
	Neither Agree nor Disagree (4)	-.8	-.6	1.4	.3
	Somewhat Disagree (5)	-1.9	-.2	1.2	1.4
	Disagree (6)	-.9	-.4	1.0	.6
	Strongly Disagree (7)	-.9	-1.0	1.9	.2
My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Strongly Agree (1)	.1	1.4	.2	-1.2
	Agree (2)	1.6	1.3	-.9	-2.0
	Somewhat Agree (3)	.9	1.4	-1.9	-.6
	Neither Agree nor Disagree (4)	**2.1**	-1.6	.6	-1.8
	Somewhat Disagree (5)	-1.0	.8	-.5	.9
	Disagree (6)	-1.4	-1.2	1.3	1.6
	Strongly Disagree (7)	-2.0	-1.5	1.5	**2.2**
The university community was informed about the change to responsibility center management and its implications.	Strongly Agree (1)	1.2	.7	-.9	-1.2
	Agree (2)	1.2	-.7	-.6	-.5
	Somewhat Agree (3)	-1.7	-.1	1.1	1.1
	Neither Agree nor Disagree (4)	-1.2	1.8	-.8	.8
	Somewhat Disagree (5)	-1.1	-.7	**2.1**	.1
	Disagree (6)	-1.1	-.7	.7	1.2
My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Strongly Agree (1)	1.8	.1	-1.0	-1.3
	Agree (2)	1.1	-.4	.4	-1.2
	Somewhat Agree (3)	.6	-.4	.9	-1.1
	Neither Agree nor Disagree (4)	.4	.0	.5	-.9
	Somewhat Disagree (5)	-.7	1.0	-.3	.4
	Disagree (6)	-1.3	.0	-.2	1.7
	Strongly Disagree (7)	-1.8	-.2	-1.2	**3.1**

My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Strongly Agree (1)	1.2	.5	-.8	-1.1
	Agree (2)	.9	.3	-.9	-.6
	Somewhat Agree (3)	1.1	1.0	-1.0	-1.2
	Neither Agree nor Disagree (4)	-.4	-1.1	**2.2**	-.5
	Somewhat Disagree (5)	.1	.3	.1	-.4
	Disagree (6)	-1.1	-1.1	.5	1.6
	Strongly Disagree (7)	-1.6	.2	-.6	**2.1**
Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Strongly Agree (1)	.5	-.2	1.4	-1.5
	Agree (2)	.2	-1.0	**2.4**	-1.3
	Somewhat Agree (3)	-.6	1.5	-.2	-.2
	Neither Agree nor Disagree (4)	1.6	.2	-.5	-1.5
	Somewhat Disagree (5)	.3	.3	-.4	-.3
	Disagree (6)	-1.8	-.4	-1.1	**3.2**
	Strongly Disagree (7)	-.2	-1.2	-1.2	**2.1**
If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Strongly Agree (1)	.2	.9	.7	-1.4
	Agree (2)	1.1	.1	-.1	-1.2
	Somewhat Agree (3)	-.4	1.6	-.8	-.1
	Neither Agree nor Disagree (4)	-.2	-2.0	**2.3**	-.1
	Somewhat Disagree (5)	.4	.2	-1.4	.4
	Disagree (6)	-.4	-.4	-.5	1.2
	Strongly Disagree (7)	-1.2	-.8	-.8	**2.6**
The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Strongly Agree (1)	1.7	-.7	-.7	-.9
	Agree (2)	1.7	.8	-.5	**-2.2**
	Somewhat Agree (3)	-.3	1.0	.3	-.6
	Neither Agree nor Disagree (4)	-.9	.0	.7	.5
	Somewhat Disagree (5)	1.0	-.7	-1.4	.4
	Disagree (6)	-2.0	-.9	1.5	1.7
	Strongly Disagree (7)	-1.1	-.7	-.7	**2.3**

Note . Standardized residuals in bold are those that exceed +/- 2.

CHAPTER V: DISCUSSION

This study sought to examine RCM at seven public institutions with the highest levels of research activity. The institutions, as all with all higher education institutions, are complex and have unique strengths, weaknesses, opportunities, and threats. The institutions implemented their various versions of RCM for different reasons; despite their differences, the respondents from the institutions illustrated some of their similarities as well as some of the pitfalls and advantages of RCM implementation.

Paths to RCM Success (or Failure)

As illustrated in Figure 4 at the conclusion of the introduction of this dissertation, success in RCM implementation requires institutions to have strong and committed leadership, engage in implementation planning, communicate well, pay attention to resources of all types, and employ continuous improvement of their models. The institutions represented in this study accomplished these prerequisites to varying degrees, as is discussed below, and therefore achieved different levels of success in their implementations.

Leadership

Respondents were enthusiastic about the need for strong, committed, and inclusive leaders in the implementation of RCM. Many noted the absence of such leadership, whether because of leadership transitions, lack of training, or a lack of willingness on the part of leaders to collaborate. Respondents noted the lack of stability of their models, lack of trust among units, and a lack of the transparency promised with implementation of RCM.Power struggles were mentioned by several respondents, especially between schools and central offices. The divides among the unit types was

clear, as central office respondents generally viewed the model and the institutions' adoption of it, more positively than their school-level colleagues. Respondents from schools highlighted the disconnect between the promised transparency and decentralization of responsibility of RCM and the current state of the models on their campuses.Institutional politics also came into play for respondents, as several wrote that the less-defined and regulated aspects of their RCM models opened the door for political plays by leaders within their institutions, especially with regard to the setting of subsidies and lobbying for other financial supports. Some respondents mentioned that the governance structures that could have helped mitigate the so-called "gaming" of the system were either not in place or were ineffective, leading to the possible conclusion that the absence of such structures hindered the success of respondents' RCM models. Notably, no respondents praised their institutional leaders with regard to the transition to RCM; thus, this study cannot conclude that improved leadership at institutions undergoing the change to RCM would mitigate the criticisms of the model. Instead, this study noted the correlation between the absence of strong and inclusive leadership in the RCM implementation process and widespread negativity about the implemented RCM models.

Implementation Planning

Rowley and Sherman (2007) recommended institutions looking to implement RCM engage in preplanning, ensure faculty involvement, collaborate in the planning process, be mindful about campus culture, make thoughtful choices around planning process leadership and structure, formalize the planning process, use the budget to support the planning process, select good implementation strategies, and ensure that the

planning process is continuous (Rowley & Sherman, 2007, pp. 117-118). Weick (2009) argued that the process of change was more successful when it engaged people, provided a direction for the change, encouraged adaptation within the process based on new information, and enabled productive interactions among members of an organization that allowed them to focus on the desired result and development of a path to reach it. The institutions represented in this study used these strategies unevenly. Participants cited the need for increased collaboration and inclusion in the planning process, clarity around the planning and implementation processes, understanding of roles and responsibilities within the planning and implementation processes, and continuous communication of the plans and their progression. Respondents could not wholly agree that their institutions had clear plans prior to implementation and that they implemented RCM in accordance with those plans, thus showing that the institutions likely could not successfully navigate the planning elements as listed by Rowley and Sherman (2007).

Communication

Communication before, during, and after implementation was key to the levels of success achieved in RCM implementation by the represented institutions. Respondents emphasized the need for inclusive communication that engaged the whole of the university community, as well as specific communications with key personnel. Respondents used the open-ended questions asking about changes they would make to their models and for advice for future implementers to discuss the important role of communication in RCM implementation and other institution-wide changes, not only to make the change and its implications clear, but also to avoid the pitfalls associated with misinformation, rumors, and lack of awareness. Though the vast majority of respondents

agreed that the university community was informed about the change to RCM and its implications, their open-ended responses emphasized that communication needs to be inclusive, continuous, and robust in order to facilitate smooth transitions. Key communications include the expected timeline and goals for implementation, the roles stakeholders and others play in the planning and implementation processes, the governance of the model, and the specific formulas and assumptions employed in the model. Clearly communicating these items could mitigate some of the grievances outlined by this study's respondents, as they cited the need for stability and clarity of their models.

Attention to Resources

Respondents felt their institutions needed to resource RCM better in order to find success. Their lack of agreement about whether their institutions devoted sufficient resources to RCM planning, implementation, and maintenance and whether their institutions had sufficient resources to operate effectively under RCM indicated that the institutions were lacking proper resources. The majority of respondents did not feel their institutions provided ample training for employees, which several linked, in their open-ended responses, to confusion, anxiety, and other negative feelings about their RCM models as well as their difficulty in managing the model effectively. Respondents did not simply focus on lack of training for staff; they also noted the importance of training and acculturating faculty, and especially deans and department heads, to ensure that the academic centers of the university were prepared to operate well under the new financial model. Respondents also noted the increased administrative burden of operating under RCM. Decentralizing management functions and decision making required decentralized

knowledge, which several noted also required changes in staffing. In addition to personnel, several respondents emphasized the harm poor enterprise reporting and financial systems caused to their ability to implement successfully, including some who strongly urged future implementers to avoid implementing RCM and new enterprise-wide systems simultaneously. The participants showed the importance of assessment of available resources prior to implementation, including addressing shortfalls in necessary resources prior to implementation, rather than during implementation, which overburdened administrators, or after implementation, which meant that administrators did not have the right tools to manage within their new financial models.

Continuous Improvement

Participants discussed many changes they would make to their RCM models, if given the chance and emphasized the need for regular model reviews, which fell in line with the work of Cooper (2003). As such, most participants felt that though their institutions did not get everything right the first time, leaders should or could work together to make changes to the model to meet institutional needs (notably, some respondents felt the model should be scrapped altogether, and thus did not see the need for continuous improvement of their RCM models). As Bray (2012) noted, the use of key performance indicators and continued refinement can help improve outcomes in decentralization; this study found uneven application of continuous improvement techniques, though many respondents noted that their models were under review, which could help increase the effectiveness of the models.

Revisiting the Research Questions

As discussed earlier in this dissertation, the research questions for the study were:

1. To what degree do institutions that adopt RCM successfully implement its practices?
    a. To what degree do adopting institutions attribute both direct and indirect costs to their constituent units?
    b. To what degree do adopting institutions attribute direct revenues to their constituent units?
    c. To what degree do adopting institutions decentralize responsibility?
    d. To what degree do adopting institutions maintain worthwhile incentives in their RCM models?
2. To what degree do institutions that adopt RCM achieve success in their implementations?
    a. To what degree do adopting institutions achieve shared understanding of roles and responsibilities among central administrators and responsibility center leaders?
    b. To what degree do adopting institutions have clear and widely shared implementation plans?
    c. To what degree do adopting institutions pay attention to their personnel, technical, and financial resources during and after implementation?
    d. To what degree do adopting institutions exhibit evidence of continuous improvement of their RCM models?
    e. To what degree do adopting institutions exhibit evidence of innovation and entrepreneurialism?

Adopting the Practices of RCM

In the realm of allocation of costs and revenues, the vast majority of participants at least somewhat agreed that direct costs were being allocated, with a smaller majority feeling the same way about allocation of direct revenues, and an even smaller majority feeling the same way about indirect costs. In these three realms, no significant differences emerged between implementer, unit, or position types, leading the researcher to conclude that while a majority believed direct cost allocations were occurring in their institutions, respondents were less certain about the allocation of pieces of the budget not typically allocated under incremental models, the revenues and indirect costs.

Closed-ended survey questions 16 through 19 addressed the question of decentralization of responsibility under RCM. A vast majority of respondents believed that central executive leaders continued to make the majority of institutional decisions. Though fewer than half of the respondents believed that decision making occurred at all levels of the institution, a vast majority believed that units could make non-financial decisions, while fewer, though still more than three-quarters of respondents, believed units could make financial decisions. A shift seems to occur in the decentralization of decision making as RCM progresses, as older implementers agreed more that people at all levels of the organization were involved in decision making, while newer implementers agreed more that central executives made the majority of decisions. Further research is needed to determine whether and when a shift in decision making occurs in RCM-implementing institutions, especially since even though the older implementers agreed that people at all levels of the organization were involved in decision making, they also agreed (though not as strongly as the newer implementers) that central executive leaders made most of the decisions. Central leaders were more likely to disagree that

decision making largely resided with central administration when compared to school leaders, likely because school leaders believed they were not being included or consulted on crucial decisions as much as they thought would occur under RCM. Mid-level leaders were more likely to disagree that decision making occurred at all levels of the institution, most likely because they sit deeper in the organization than other position types and thus are keenly aware if they are not involved in decision-making processes. Consistent with Bray (2012), these findings indicate that institutions did not reach the level of true devolution of responsibility, instead landing (at best) with delegation.

Fewer than 40 percent of respondents at least somewhat agreed there were clear and worthwhile incentives built into their RCM models. Though executives were more likely than other leaders to agree that there were incentives in place, many executives still raised issues with the incentive structures at their institutions. Though the use of incentives is a key practice in RCM models (Curry, Laws, & Strauss, 2013; Stocum & Rooney, 1997; Whalen, 1991), respondents in this study did not uniformly agree that they were in place, and many believed that their institutions did not properly take into account the behaviors they were incentivizing when building their RCM model. Other respondents emphasized the lack of incentives in line with what they perceived to be activities important to the mission. Respondents pointed to the difficulty of incentivizing mission-critical, yet non-revenue generating activities and dis-incentivizing behaviors perceived as harmful to the institutional mission; suggesting future implementers should spend additional time in their planning processes discerning the mission-critical activities they would like to sustain or grow and how to accomplish that under a new financial

model. Additionally, Institutional leaders should be prepared to answer the question of "what's in it for me?" for both individuals and activity centers.

The practices of RCM were not fully implemented at the selected institutions. Though respondents indicated that the institutions largely allocated direct costs and revenues, they were less sure about the allocation of indirect costs, especially as many in the schools felt there was a lack of transparency from central administration around increasing costs for central shared services. Respondents did not believe large shifts had occurred in decision making authority, thus the decentralization many believed would occur did not fully materialize, which, at some institutions, led to discontent, especially deeper within the organization of the institutions, as evidenced by more pointed remarks by school leaders, especially at the middle and senior levels. Additionally, respondents largely did not believe the right incentives were in place to ensure sustainable functioning of their RCM models and thus some advised future implementers to ensure incentives are in place and that they do not incent behaviors that may run counter to the mission of their institutions.

Implementing RCM Successfully

Although a slight majority of respondents believed their institutions successfully implemented RCM, significant differences emerged among older and newer implementers and central and school respondents, with older implementers and central respondents feeling more positive about the success of their institutions' implementations than newer implementers and school respondents. Part of the reason for this may lie with the fact that though the vast majority of respondents thought central leaders were supportive of the change to RCM, only 64 percent thought school leaders were similarly

supportive. This gap fits with the divides in bureaucracies discussed by Birnbaum (1988); though he emphasized the divide between faculty and administrators, the divide in this case was between the academic units and central administration.

Bridging this gap between central administration and the schools and colleges is a central issue in RCM implementation. Fewer than three-quarters of respondents believed that leaders in central offices and schools worked together effectively and understood their roles and responsibilities in the institutional budget process. Institutions struggled to create unity leading up to and during the implementation of the large change to RCM, as evidenced by their differing responses to survey questions, because they lacked shared understanding of roles and responsibilities (Gayle, Tewarie, & White, 2003), likely because all wide-scale changes are difficult to enact in complex organizations (Bolman & Deal, 2013; Clark, 1987). This lack of shared understanding could have been a result of differences between individual and organizational interpretations, as theorized by Daft and Weick (1984) and/or the result of differences in perceived resource dependence and its implications for employees in different units and levels of the institutions (Pfeffer & Salancik, 1978). In summary, there was widespread disagreement within institutions about whether institutions had achieved success, most notably between personnel who were employed in central administration as compared to those employed by schools and colleges.

The responses suggest that the gaps in shared understanding may have been bridged with ample and clear communication. Although respondents largely agreed that they and the university community had been informed about the change to RCM, nearly 30 percent of respondents at least somewhat disagreed that their institutions had clear and

widely shared implementation strategies and timelines. The same percentage of respondents at least somewhat disagreed that their implementation proceeded in line with institutional strategy and timeline, with school respondents disagreeing more often than respondents from central units. Thus, although the institutions embarked on a planning process prior to implementation, respondents did not wholly agree that the process resulted in a plan that was followed, which likely helped create and/or magnified the negative effects of RCM cited by respondents.

Revisiting the Conceptual Model

Figure 4 presented a conceptual model of the requirements for successful RCM implementation, as presented by organizational theory and RCM literature. As illustrated by the responses to the survey, implementation of RCM requires more than a step-by-step model. The researcher revised Figure 4 to downplay its systematic presentation, as contrasted in Figure 12 below. The revised model for the requirements for successful RCM implementation retains the pieces and presentation order of the original model, but also shows that pieces of the model never cease to occur in RCM implementation and maintenance.

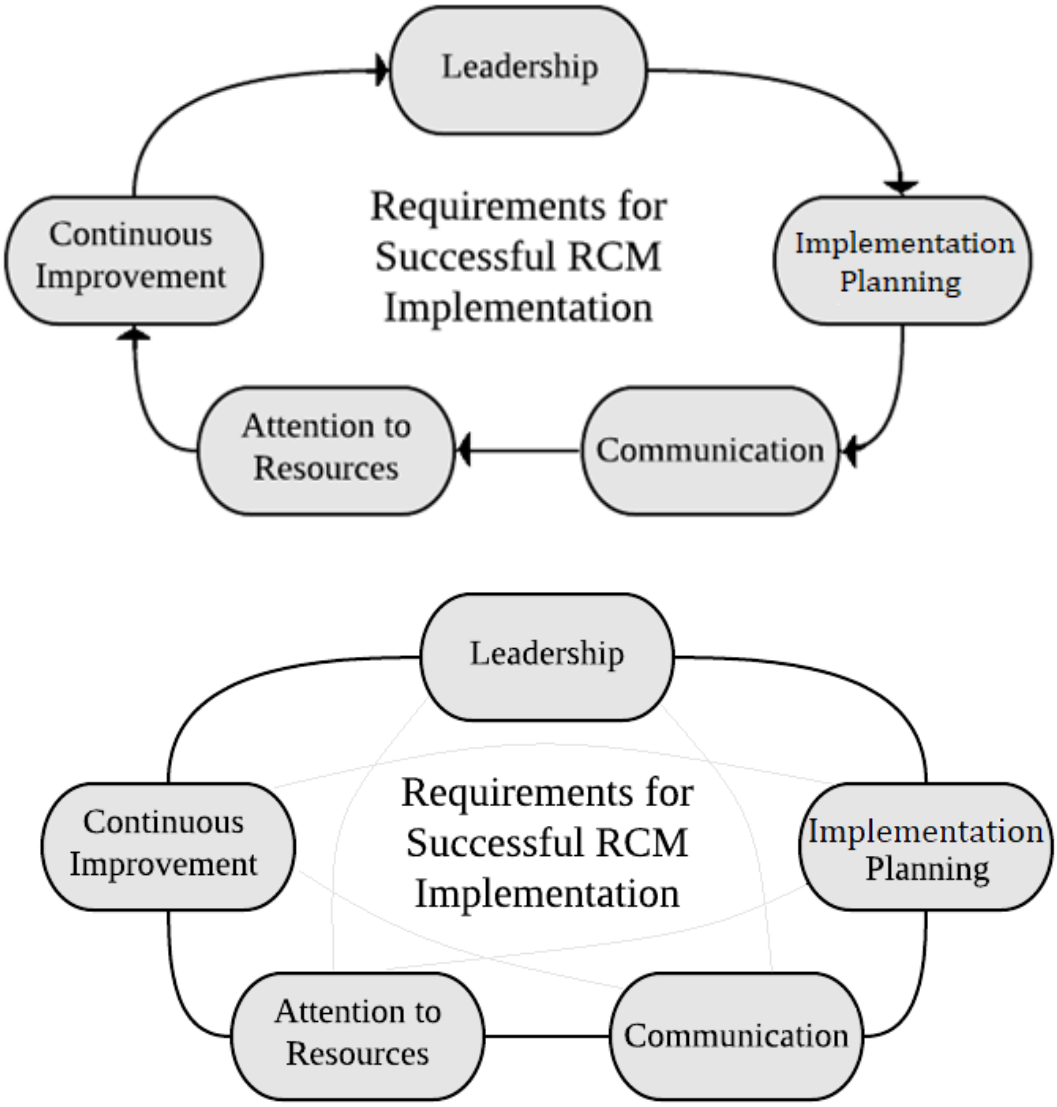

Figure 12. Original (top) and revised (bottom) conceptual models for successful RCM implementation.

The pieces in the conceptual model – leadership, implementation planning, communication, attention to resources, and continuous improvement – do not occur in isolation or in sequence. For example, while institutional leadership initiates the change to RCM, their involvement does not end with initiation; they are essential to the planning, implementation, and maintenance of the RCM model. Additionally, while communication is important after the development of the implementation plan, it is also

important in the formulation of the strategic plan and decisions regarding improvements to the model. Birnbaum (2000) described academic management fads, and while RCM seems to fit the model he described, respondents to the survey in this study thought that RCM was staying, in some form, at their institutions. While organizational theorists informed the conceptual model, the application of the model to implementation of RCM, as with the application of Birnbaum's model of academic management fads, illustrates the differences between theory and practice.

Resourcing RCM

Respondents felt that institutions in this study largely did not resource their RCM implementations properly. Fewer than half of respondents believed their institutions devoted sufficient resources to RCM planning, implementation, and maintenance. Fewer than 40 percent of respondents believed their institutions had sufficient resources to operate an RCM model effectively, with school respondents more likely to disagree than central respondents and mid-level leaders more likely to disagree than would otherwise be expected. It is unlikely that the institutions knowingly undertook RCM implementations absent sufficient resources to support the change. More likely, the represented institutions did not sufficiently plan for the change; effective planning requires attention to resources, as shown in Figure 10 and as described by Rowley and Sherman (2007). It is likely that the institutions did not understand the resources they would need for a change to RCM and proceeded toward implementation absent full knowledge of the requirements. A majority of respondents at least somewhat disagreed that their institution provided ample training for employees, and though there were differences in the responses of central and school leaders, both groups largely disagreed

that training was in place; the school respondents disagreed more than the central respondents did. Taken together, the findings suggest that the resourcing of RCM planning, implementation, and maintenance was not sufficient for the institutions represented to operate effectively, thus contributing to the negative effects of implementation listed by respondents. Participants noted the problems with a lack of proper resourcing, including unreliable data, mistrust between units, untrained faculty and staff, and strong adverse reactions to the change, thus highlighting for future implementers the importance of proper resourcing of RCM planning, implementation, and maintenance.

Adapting RCM to the Institution

Nearly three-quarters of participants in the study believed that their RCM models were adapted to meet institutional needs, though central administrators agreed more often than school leaders. Just over 60 percent of respondents believed their institutional leaders worked to make changes when aspects of the new financial models did not meet institutional needs, but older implementers agreed more than newer implementers and central administrators agreed more than school administrators. Only 45 percent of respondents believed leaders in their institutions had and regularly addressed key performance indicators. The open-ended responses also revealed a desire on the part of participants to make changes to their RCM models – changes that were not necessarily being discussed during RCM reviews. Taken together, these data points suggest that some aspects of continuous improvement of RCM models were in place at the represented institutions, but the institutions were not fully ensuring that the chosen RCM models were being monitored and updated to meet institutional needs.

Innovation and entrepreneurialism were on the minds of the respondents, as many wrote about revenue-generating units changing their behaviors in response to RCM metrics, market (especially student) demands, and availability of extramural funding. Over 80 percent of respondents believed their institutions had diversified funding sources post-implementation, and many wrote that this change was due, in part, to the increased transparency into university finances provided by the change to RCM. Respondents were less sure about their institution's ability to adapt to expanding and changing demands, as slightly more than half at least somewhat agreed that their institutional leaders worked together effectively to meet external demands. Responses were mixed when participants were asked about cross-disciplinary and outward-facing activities. Fewer than half of respondents believed their academic departments had embraced the change to RCM, though nearly three-quarters believed the behaviors of the departments had changed in response to RCM implementation. This disconnect was best evidenced by a faculty member who shared that half of department heads at his/her institution had admitted to lowering the quality of education in response to RCM implementation and only a third of department heads expressed satisfaction with the model, which led to a letter from the faculty to the president of the institution asking for RCM to be abandoned. This was yet another example of the divide between academics, especially the faculty, and central administration, as described by Birnbaum (1988).

RCM as a Tool

Respondents both alluded and directly referred to the nature of RCM as a tool, a philosophy, and a decision maker. This spectrum of views on RCM illustrates its roles in the represented institutions. For some respondents, RCM provided clarity that allowed

them to make decisions with proper knowledge of institutional activities. For others, RCM provided a path to financial sustainability, its metrics and formulae served to guide institutional decision makers toward achieving their goals. Some respondents felt RCM played a larger role in their institutions, as the formulae used in the institutions' RCM models, respondents felt, led directly to decisions, thus taking the human element out of decision making. Where implementing institutions fell on this spectrum from RCM as a tool to RCM as a decision maker could depend on how institutions choose to implement the model, how institutional leaders choose to communicate the rationale behind their decisions (i.e. "our budget model says" versus "given our insight into the our institution's budget and our knowledge of mission-critical activities"), the incentives built into the RCM model, and the extent to which institutional stakeholders understand RCM and the mission of the institution.

Should Institutions Implement RCM?

Institutions that pursue RCM implementation often end up implementing RCM-like models. Respondents in this study listed numerous negative effects of implementation at their institutions, including decreases in collaboration and interdisciplinary work, increased mistrust and competition among units, confusion about the model, lack of enterprise systems to support the increased data needs, lack of clarity about the purpose and administration of unit subsidies, decreases in academic rigor, increased administrative burden, unclear and/or unevenly administered incentives, and uneven devolution of RCM within units. Notably, many respondents felt the implementation of RCM led to an emphasis of money over mission, which Kirp (2003) wrote led to many of the pitfalls of RCM. Though respondents frequently listed negative

effects of implementation, many were able to see the potential benefits of successful implementation, even if that success was not achieved within their institutions. This sentiment was echoed by others who felt that their institutions had implemented some of the bad aspects of RCM, while leaving out or postponing some features that could have improved their models, such as implementing metrics for distributing tuition based on credit hours and enrollment without sufficient governance structures in place to prevent course poaching and implementing subsidies for units without providing clarity about the long-term outlook, management, and purpose of such subsidies, which prevented units from engaging in meaningful multi-year planning.

Several respondents mentioned the presence of "winners" and "losers" under RCM at their institutions. This study highlights some differences of opinion among leaders of higher education institutions that recently implemented RCM, the opinions of whom could be affected by their positions within RCM and the effects of RCM on their units. While the study's results analyzed differences between respondents by unit type, time since implementation, and position type, the differences between unit types – school and central offices – were the most pronounced, suggesting the need for more bridging between leaders in those offices.

Although participants often listed how their institutions stumbled in their implementations, they did note many positives effects associated with RCM, including the ability of the units to control their own destiny, increased transparency, increased discussions and understanding of university finances, attention to the financial implications of decisions at the unit level, and increased efforts by units to engage in entrepreneurial and innovative activities that their previous budget models either did not

support or did not incent. Though several participants stated they were unable to list any positives associated with RCM implementation at their institutions, others listed far more positive changes in their institutions than negative ones. As such, RCM can have positive effects and negative effects, the magnitude and prevalence of which depends largely on the success of the implementation and the degree to which institutions truly implement the practices of RCM. This study revealed that the represented institutions struggled in both those arenas, which held back the promised positive effects of RCM and exacerbated the known pitfalls (Leslie, Oaxaca, & Rhoades, 2002). Though participants noted that the model seemed good in theory, they highlighted the difficulty of reaping the rewards of the change.

Need to Engage All

As discussed above, institutions implementing RCM need to engage stakeholders before, during, and after implementation. Respondents in this study emphasized the need to engage all in the planning process, implementation, review, and operation of the model, pointing out that although leaders set the vision for the model, they need to engage those doing the underlying work – teaching the students, generating the research, performing outreach functions, and managing the unit budgets. Many noted that widespread engagement elongates the planning process, but felt that without such engagement, their institutions hit roadblocks that impeded implementation success and led to models rife with confusion and without much-needed stability. Respondents strongly advised future implementers to ensure buy-in prior to implementation.

Limitations

This study's conclusions were limited by the engagement and standpoints of the invited participants. The survey had nonresponse; the researcher cannot know whether the portion of the sample that did not respond was significantly different from the portion that did respond. A higher response rate reduces the impact of nonresponse on the results (Lynn, 2015), so the researcher sent reminders to those invited to the survey to help increase response rates. To the extent that particular institutions represented in the study had a weak response rates to the survey (under 15 percent response from invited participant pool), the researcher was unable able to create reliable institutional profiles of responses; however, the researcher did include those responses in the overall study results. The positions represented by the participants invited to the study were not represented in the same ratios in the responses; the researcher was not able to determine if the results were affected by the different response rates among the represented positions and position levels. This study has limited generalizability given the number of variations of RCM in place around the United States. This study did not ask respondents identify the details of the RCM models implemented at their institutions, thus this study only discusses RCM and its implications for represented institutions as informed by the responses of participants in the study, with no assumption that the forms of RCM implemented at the represented institutions will be equivalent. This lack of information about the so-called "purity" of the RCM models involved prevents effective comparisons of the RCM models, thus this study only focused on whether institutions were able to implement the basic practices of RCM and were successful in doing so, not the extent to which the change affected university finances or other long-term impacts. This study sought to describe the opinions and experiences of individuals at RCM institutions using

a retrospective approach, thus the study also was limited by the individuals' recollections, potentially tainted by their current experiences within the institution, and by the variations among sampled institutions in time since RCM implementation. Taken together, the conclusions made by this study could be used generally to inform leaders of higher education institutions wishing to implement RCM about potential areas of concern and/or areas to which they should pay extra attention, but those leaders should tailor the conclusions to the circumstances within their institutions.

Suggestions for Further Research

Higher education leaders implement RCM because they believe it will help their organizations; however, the successful implementation of RCM is hard to achieve, like many large-scale changes in complicated organizations. As such, there are many opportunities for further research on RCM implementation – and higher education leaders seem to be willing participants, as shown by the responses of participants in this study, including one school executive, who wrote, "Thank you for including me in this conversation. I have more to say, and would be happy to write a short paper on the process here if you are interested." Following Birnbaum (2000), one might classify the current state of RCM in higher education as being in the resolution of dissonance phase of the fad process; only time and further research will tell whether RCM fits that mold.

Future studies could build upon the results here by focusing more on the perspectives of faculty and department heads, which were only included in this study to the extent those personnel were explicitly included in the RCM planning processes or were serving in unit-leading administrative capacities (i.e. deanships). Additionally, future studies could focus on specific aspects of RCM implementation, including

engagement of personnel in the planning process, faculty and staff training and development, communication around RCM implementation, and systems implementations in response to RCM implementation. Given the wide-ranging advice for future implementers provided by respondents in this study, researchers could also probe recent implementers further about unanticipated challenges and successes in implementing RCM models.

In addition to studying implementations, researchers could study the specific methodologies used by institutions, as most are models combining elements of RCM and other budget models (i.e. hybrid models). In line with the laments of Agostino (1993) about the faults of Indiana University-Bloomington's hybrid RCM model, respondents mentioned the confusion and potential harm to their institutions caused by blending elements of RCM with other models (e.g. incremental budgeting), as the blended models were perceived to have watered down the advantages respondents thought RCM would bring to their institutions. Studies of the methodology used by institutions claiming to have RCM models could allow for improved comparisons of the effects of RCM implementation. Future research should also involve a wider swath of higher education, in order to make results more generalizable, as this study included only public, R1 institutions. Although future implementers could take the findings of this study into account when contemplating or implementing their own RCM implementations, studies including more than seven institutions or institutions that are not public, R1 institutions could provide a more comprehensive view of RCM in higher education. The researcher grouped participants in this study's analysis by time since implementation, but the results did not reveal whether differences between institutions were related to the length of time

since implementation. Future research could focus on how stakeholders view their RCM implementations at multiple points in time post-implementation, to see if opinions change as time passes.

Additional studies could focus on one or more of the five phases of implementation, as formulated by Curry, Laws, and Strauss (2013): due diligence and visioning, financial modeling, consensus building, infrastructure development, and management of the system. As shown above, participants in this study provided advice and pitfalls related to each phase; further investigation of the phases could provide more detail and evidence related to implementation to higher education institutions looking to move to RCM.

There are few academic studies of RCM, despite its growing presence in higher education. Birnbaum (2000) lamented the role of consultants in the lifecycle of management fads in higher education; an increase in academic research about RCM models, including their implementation, methodology, and results, could help institutions looking to move to RCM have other sources of information besides anecdotes and information provided by consultants. Such academic research could also help bridge some of the gaps between faculty and administrators looking to implement RCM, as it could provide evidence-based reasoning for decisions surrounding RCM, helping to lift the veil in institutional decision making.

Conclusion

The fundamental question posed for this research was whether higher education institutions can implement RCM successfully. As summarized by a participant at one of the represented institutions, the answer is yes, though he/she did not agree that his/her

institution had achieved success. The participant wrote, “I would call it an ill-fated partially-executed no-accountability partial-RCM model that was doomed to failure before it was put in place - but not an indictment of well-designed and executed RCM models.” As evidenced by the institutions represented in this study, institutions looking to implement RCM should be aware that such a large change requires them to navigate carefully a difficult path, one fraught with potential pitfalls. Participants in this study did not wholly agree that their institutions had implemented the practices of RCM or had achieved success in their implementations. That is not to say that institutions cannot successfully implement RCM – that same dean presented an example of an institution he/she believed had implemented the model well, and there are many institutions that have kept RCM and RCM-like models in place for years. Birnbaum (2000) believed that the academic management techniques, such as RCM, were brought into higher education institutions from other sectors without full consideration of their limitations and challenges; this study highlighted many of the limitations and challenges of RCM implementation at seven public R1 institutions. Though external forces can lead institutions to adopt market-like behaviors and practices (Slaughter & Leslie, 1997), respondents in this study did not emphasize the external forces as the primary issue with their implementations, but rather a lack of internal understanding of institutional operations and mission. Though the institutions represented in this study did not show great success in their implementations, institutions may successfully implement RCM if they communicate well; have strong, committed, and inclusive leaders; are mindful of their personnel, financial, and technical resources; engage in implementation planning

and proceed in accordance with those plans; and continuously improve their models to meet the evolving needs of the institutions and their stakeholders.

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APPENDIX A: EMAIL INVITATION FOR PILOT STUDY

Dear [Name],

I am a doctoral candidate in the Center for the Study of Higher Education at the University of Virginia's Curry School of Education. Additionally, for full disclosure, I am an employee of the University of Virginia's Curry School of Education. I am writing you to request your participation in a pilot study I am conducting as part of my dissertation research. My study examines the effects of responsibility center management on institutions of higher education. The pilot study, in which you are invited to participate, is meant to test the effectiveness of the survey instrument to be used for the larger study. You were chosen for this pilot study because of your role at the University of Virginia.

The purpose of the larger study is to examine the effects of responsibility center management. Specifically, the larger study seeks to answer the following questions:

1. To what degree do institutions that adopt responsibility center management successfully implement its practices?
2. To what degree do institutions that adopt responsibility center management achieve success in their implementations?

Institutions are adopting RCM and RCM-like models at an increasing rate in the United States, yet there is little academic research on this management innovation. Findings from the larger study will help inform the decisions of institutions looking to adopt RCM in the future.

This survey for the pilot study asks you questions about your experiences with and opinions of responsibility center management, also known as the *University Financial Model*, at the University of Virginia. The pilot study concludes by asking you to provide feedback on the survey itself. You do not need to provide your contact information while completing the survey; your response will remain confidential. The institutions represented in the study will be given pseudonyms and broad descriptions will be used to present the institutions. Position titles will also be aggregated so as not to link comments to direct position titles, e.g. "University leader" rather than "Provost."

If you agree to participate in this pilot study, please complete the online survey at [URL ADDRESS].

If you have any questions about the pilot study or larger study, please feel free to contact me at kwalker@virginia.edu or 602-750-1607.

Thank you for your consideration! Your input will be valuable to me as I conduct my study. I hope to provide institutions planning a change to RCM and RCM-like models in the future with information to help them improve their outcomes. I would be happy to provide you with a copy of the report at the conclusion of the larger study.

Best,
Katie Walker
Curry School of Education
University of Virginia

APPENDIX B: SURVEY FOR PILOT STUDY

Responsibility Center Management at Public Research Universities

You have been selected to complete this survey because your institution meets this study's criteria of having begun adoption of a form of responsibility center management within the past six years. This survey asks you about your knowledge of the effects of responsibility center management at your institution by asking you questions about functions, procedures, and other management issues before and after your institution's implementation. This study has been approved by the University of Virginia's Institutional Review Board. Your institution may refer to its recent change in financial model as a move to responsibility center management or may have titled the change differently, such as the *university financial model*, *responsibility center budgeting,* etc. Please answer these questions referring to responsibility center management with your institution's new model in mind.

Instruction 1 The following questions will ask you for general information about your position within your institution. This information is not intended to identify you as a respondent, but instead to allow the researcher to analyze responses. Position descriptions will be aggregated or otherwise concealed to preserve confidentiality.

If you do not wish to answer one or more of the following questions, select the option "Choose not to answer".

If you do not see an option that best describes you, please select "Other" and type a descriptor that works for you.

Q1 What best describes your position in your institution?

- ❍ Analyst (1)
- ❍ Associate/Assistant Vice President (2)
- ❍ Associate/Assistant Vice Provost (3)
- ❍ Associate/Assistant Dean (4)
- ❍ Associate or Assistant Director/Manager (5)
- ❍ Board Member (6)
- ❍ Chief Academic Officer/Provost (7)
- ❍ Chief Business Officer/Chief Financial Officer (8)
- ❍ Chief Executive Officer/President (9)
- ❍ Chief Operating Officer (10)
- ❍ Controller/Comptroller (11)
- ❍ Dean (12)
- ❍ Director (13)
- ❍ Faculty (14)
- ❍ Manager (15)
- ❍ Treasurer (16)
- ❍ Vice President/Senior Vice President (17)
- ❍ Vice Provost/Senior Vice Provost (18)

- ❍ Other (19) _____
- ❍ Choose not to answer (20)

Q2 What best describes your job? (Choose up to two)
- ❍ Academic Administration (1)
- ❍ Athletics (2)
- ❍ Communications, Marketing, and Media (3)
- ❍ Development (4)
- ❍ Educational Resources (5)
- ❍ Finance (6)
- ❍ General Administration (7)
- ❍ Health Services (8)
- ❍ Human Resources (9)
- ❍ Instruction (10)
- ❍ Information Technology (11)
- ❍ Operations (12)
- ❍ Protection, Compliance, and Regulation (13)
- ❍ Research (14)
- ❍ Student Resources (15)
- ❍ Trades and Engineering (16)
- ❍ Other (17) _____
- ❍ Choose not to answer (18)

Q3 What best describes the unit in which you work?
- ❍ Central (e.g. provost, president, human resources, IT, finance, etc.) (1)
- ❍ School (e.g. School of Medicine, School of Law, etc.) (2)
- ❍ Other (3) _____
- ❍ Choose not to answer (4)

Q4 For how many years have you worked at your institution?
- ❍ 0-4 years (1)
- ❍ 5-9 years (2)
- ❍ 10+ years (3)
- ❍ Choose not to answer (4)

Q5 Were you employed at your institution prior to its implementation of responsibility center management (RCM)?
- ❍ Yes (1)
- ❍ No (2)
- ❍ Choose not to answer (3)

Q6 For how many years have you worked in higher education?
- ❍ 0-4 years (1)
- ❍ 5-9 years (2)
- ❍ 10+ years (3)
- ❍ Choose not to answer (4)

Instruction 2 The following questions ask you to describe how your institution operates after implementation of responsibility center management. Again, your institution may not call its new financial model responsibility center management; instead, it may use a different moniker, such as *university financial model*, *responsibility center budgeting*, etc. Answer these questions with your institution's new financial model in mind.

Please provide a rating to the following statements based on your experience and knowledge of the new financial model at your institution.

Q7 I was involved in the decision to change to an RCM model.
- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q8 After implementation of responsibility center management, leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.
- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q9 After implementation of responsibility center management, leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.
- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q10 Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.
- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)

- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q11 My institution implemented responsibility center management in line with its strategy and timeline.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q12 My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q13 My institution provides ample training for employees at all levels of the institution.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q14 My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q15 Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q16 If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q17 Most often, central executive leaders make decisions that affect all other organizations and people in the institution.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q18 Today, after implementation of responsibility center management, people at all levels of my institution make decisions that affect the overall direction of the institution.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q19 Today, after implementation of responsibility center management, the units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)

- ❍ Agree (6)
- ❍ Strongly agree (7)

Q20 Today, after implementation of responsibility center management, the units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q21 Today, after implementation of responsibility center management, direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q22 Today, after implementation of responsibility center management, indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q23 Today, after implementation of responsibility center management, direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q24 Today, after implementation of responsibility center management, my institution has clear and worthwhile incentives for units that practice sound financial decision making.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q25 The university community was informed about the change to responsibility center management and its implications.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q26 Central leaders at my institution were supportive of the change to responsibility center management.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q27 School/college leaders at my institution were supportive of the change to responsibility center management.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q28 My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)

- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q29 My institution's version of responsibility center management was adapted to meet institutional needs.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q30 My institution successfully implemented its version of responsibility center management.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q31 My institution decided to implement responsibility center management as a response to financial constraints.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q32 My institution’s academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q33 My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q34 My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q35 My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q36 My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q37 My institution has a culture of innovation and entrepreneurship.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)

- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q38 In what ways do you believe the implementation of responsibility center management changed the way your institution operates?

Q39 In what ways did a shift in roles, responsibilities, and/or authority occur as a result of responsibility center management implementation?

Q40 In what ways have you or your organization experienced any positive effects of responsibility center management?

Q41 In what ways have you or your organization experienced any negative effects of responsibility center management?

Q42 What, if any, changes would you make to the responsibility center management model at your institution?

Q43 What would you say are the most important features of your institution's responsibility center management model?

Q44 What advice would you give to institutions researching responsibility center management or just beginning their planning process?

Q45 What do you think is the future of responsibility center management at your institution?

Q46 Please provide any additional comments about responsibility center management at your institution below.

Q47 If you believe that others at your institution should take this survey and are willing to provide their contact information, please do so below.

Q48 How do you think this survey could be improved to provide the researcher with better information about responsibility center management? Please provide feedback on the survey's content and/or structure or any other feedback you would like to provide to the researcher. Thank you for your help!

Q49 Would you be willing to provide additional feedback about the survey instrument? If so, please provide your contact information below.

Thank you for your participation in this pilot study. Please save a copy of the informed consent agreement below for your records or email kwalker@virginia.edu if you would like a copy emailed to you.

APPENDIX C: INFORMED CONSENT AGREEMENT FOR PILOT STUDY

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the pilot study.

Purpose of the research pilot study: The purpose of the study is to understand for the effects of responsibility center management implementation on institutions of higher education. The responses you provide in this pilot study will help the researcher assess the effectiveness of the survey instrument for the study.

What you will do in the pilot study: For this study, you will complete an online survey that asks you open-ended and multiple-choice questions about responsibility center management at your institution. In order to complete the survey, you will need to complete the multiple-choice questions. You may opt to skip the open-ended questions if you do not wish to answer them.

Time required: The survey will require about 20 to 40 minutes of your time.

Risks: There are no anticipated risks in this pilot study.

Benefits: There are no direct benefits to you for participating in this pilot research study.

Confidentiality: The information that you give in the study will be handled confidentially. You will not be asked to submit your contact information. Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt by the researcher to do so and your data will be reported in a way that will not identify you. No information gleaned from the pilot study will be included in the final report for the research study.

Voluntary participation: Your participation in the pilot study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you would like to withdraw from the survey, you may exit without submitting. If you submit the survey, the researcher will not be able to withdraw your submission, as it will not have your name for identification purposes. There is no penalty for withdrawing at any point of the study.

Payment: You will receive no payment for participating in the study.

If you have questions about the study, contact:
Katie Walker

Educational Leadership, Foundations, and Policy, Bavaro Hall 306
University of Virginia, Charlottesville, VA 22903
Telephone: (434) 243-4585
Email: kwalker@virginia.edu

Brian Pusser, Ph.D.
Educational Leadership, Foundations, and Policy, Ruffner Hall 290
University of Virginia, Charlottesville, VA 22903
Telephone: (434) 924-7731
Email: bp6n@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr. Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: www.virginia.edu/vpr/irb/sbs

Agreement:
By proceeding to the survey, I agree to participate in the research study described above.

[button to move to survey]

At the conclusion of the survey, you will receive a copy of this form for your records.

APPENDIX D: SURVEY INSTRUMENT

Responsibility Center Management at Public Research Universities

You have been selected to complete this survey because your institution meets this study's criteria of having begun adoption of a form of responsibility center management within the past six years. This survey asks you about your knowledge of the effects of responsibility center management at your institution by asking you questions about functions, procedures, and other management issues before and after your institution's implementation. This study has been approved by the University of Virginia's Institutional Review Board.

Your institution may refer to its recent change in financial model as a move to responsibility center management or may have titled the change differently, such as the *university financial model*, *responsibility center budgeting*, etc. Please answer these questions referring to responsibility center management with your institution's new model in mind.

Section 1 - Responsibility Center Management Planning

Instruction 1 The following questions ask you to describe how your institution planned for the implementation of responsibility center management. Again, your institution may not call its new financial model responsibility center management; instead, it may use a different moniker, such as *university financial model*, *responsibility center budgeting*, etc. Answer these questions with your institution's new financial model in mind and, as best you can, the whole institution in mind.

Q1 I was involved in the decision to change to an RCM model.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2 The university community was informed about the change to responsibility center management and its implications.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q3 Central leaders at my institution were supportive of the change to responsibility center management.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q4 School/college leaders at my institution were supportive of the change to responsibility center management.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q5 Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Section 2 - Responsibility Center Management Implementation

Instruction 2 The following questions ask you to describe how your institution's implementation of responsibility center management. Again, your institution may not call its new financial model responsibility center management; instead, it may use a different moniker, such as *university financial model*, *responsibility center budgeting*, etc. Answer these questions with your institution's new financial model in mind and, as best you can, the whole institution in mind.

Q6 My institution implemented responsibility center management in line with its strategy and timeline.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)

- Agree (6)
- Strongly agree (7)

Q7 My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q8 My institution's version of responsibility center management was adapted to meet institutional needs.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q9 My institution successfully implemented its version of responsibility center management.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q10 My institution decided to implement responsibility center management as a response to financial constraints.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Section 3 – Current State of Responsibility Center Management

Instruction 3 The following questions ask you to describe how your institution's is operating today under responsibility center management. Again, your institution may not call its new financial model responsibility center management; instead, it may use a different moniker, such as *university financial model*, *responsibility center budgeting*, etc. Answer these questions with your institution's new financial model in mind and, as best you can, the whole institution in mind.

Q11 My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q12 My institution provides ample training for employees at all levels of the institution.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q13 My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q14 Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q15 If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q16 Most often, central executive leaders make decisions that affect all other organizations and people in the institution.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q17 People at all levels of my institution make decisions that affect the overall direction of the institution.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q18 The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q19 The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)

- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q20 Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q21 Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q22 Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q23 Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q24 Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q25 My institution has clear and worthwhile incentives for units that practice sound financial decision making.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q26 My institution's academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q27 My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q28 My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree nor disagree (4)
- ❍ Somewhat agree (5)

- Agree (6)
- Strongly agree (7)

Q29 My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q30 My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q31 The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Section 4 – Open-Ended Questions

Instruction 4 The following open-ended questions ask you to describe responsibility center management at your institution. Again, your institution may not call its new financial model responsibility center management; instead, it may use a different moniker, such as *university financial model*, *responsibility center budgeting*, etc. Answer these questions with your institution's new financial model in mind and, as best you can, the whole institution in mind.

Q32 In what ways do you believe the implementation of responsibility center management changed the way your institution operates?

Q33 In what ways did a shift in roles, responsibilities, and/or authority occur as a result of responsibility center management implementation?

Q34 In what ways have you or your organization experienced any positive effects of responsibility center management?

Q35 In what ways have you or your organization experienced any negative effects of responsibility center management?

Q36 What, if any, changes would you make to the responsibility center management model at your institution?

Q37 What would you say are the most important features of your institution's responsibility center management model?

Q38 What advice would you give to institutions researching responsibility center management or just beginning their planning process?

Q39 What do you think is the future of responsibility center management at your institution?

Q40 Please provide any additional comments about responsibility center management at your institution below.

Section 5 – General Demographic Information

Instruction 5 The following questions will ask you for general information about your position within your institution. This information is not intended to identify you as a respondent, but instead to allow the researcher to analyze responses. Position descriptions will be aggregated or otherwise concealed to preserve confidentiality.

If you do not wish to answer one or more of the following questions, select the option "Choose not to answer".

If you do not see an option that best describes you, please select "Other" and type a descriptor that works for you.

Q41 What best describes your position in your institution?

- ❍ Analyst (1)
- ❍ Associate/Assistant Vice President (2)
- ❍ Associate/Assistant Vice Provost (3)
- ❍ Associate/Assistant Dean (4)
- ❍ Associate or Assistant Director/Manager (5)
- ❍ Board Member (6)
- ❍ Chief Academic Officer/Provost (7)
- ❍ Chief Business Officer/Chief Financial Officer (8)
- ❍ Chief Executive Officer/President (9)
- ❍ Controller/Comptroller (10)
- ❍ Dean (11)
- ❍ Director (12)
- ❍ Faculty (13)
- ❍ Manager (14)
- ❍ Treasurer (15)
- ❍ Vice President/Senior Vice President (16)
- ❍ Vice Provost/Senior Vice Provost (17)
- ❍ Other (18) _____
- ❍ Choose not to answer (19)

Q42 What best describes your job? (Choose up to two)

- ❍ Academic Administration (1)
- ❍ Athletics (2)
- ❍ Communications, Marketing, and Media (3)
- ❍ Development (4)
- ❍ Educational Resources (5)
- ❍ Finance (6)
- ❍ General Administration (7)
- ❍ Health Services (8)
- ❍ Human Resources (9)
- ❍ Instruction (10)
- ❍ Information Technology (11)
- ❍ Operations (12)
- ❍ Protection, Compliance, and Regulation (13)
- ❍ Research (14)
- ❍ Student Resources (15)
- ❍ Trades and Engineering (16)
- ❍ Other (17) _____
- ❍ Choose not to answer (18)

Q43 What best describes the unit in which you work?

- ❍ Central (e.g. provost, president, human resources, IT, finance, etc.) (1)
- ❍ School (e.g. School of Medicine, School of Law, etc.) (2)
- ❍ Other (3) _____
- ❍ Choose not to answer (4)

Q44 For how many years have you worked at your institution?

- ❍ 0-4 years (1)
- ❍ 5-9 years (2)
- ❍ 10+ years (3)
- ❍ Choose not to answer (4)

Q45 Were you employed at your institution prior to its implementation of responsibility center management (RCM)?

- ❍ Yes (1)
- ❍ No (2)

Q46 For how many years have you worked in higher education?

- ❍ 0-4 years (1)
- ❍ 5-9 years (2)
- ❍ 10+ years (3)
- ❍ Choose not to answer (4)

Q47 If you believe that others at your institution should take this survey and are willing to provide their contact information, please do so below.

Thank you for your participation in this study. Please save a copy of the informed consent agreement below for your records or email kwalker@virginia.edu if you would like a copy emailed to you. If you would like to be sent a copy of the results at the conclusion of the study, please reply to you invitation email or send an email to kwalker@virginia.edu.

APPENDIX E: MAP OF SURVEY QUESTIONS TO RESEARCH QUESTIONS

Map of Survey Questions to Research Questions and Sub-Questions

Q#	Survey Question	Type	Research Question	RQ#
1	I was involved in the decision to change to an RCM model.	Likert	n/a	n/a
2	The university community was informed about the change to responsibility center management and its implications.	Likert	Successful RCM Implementation	2b
3	Central leaders at my institution were supportive of the change to responsibility center management.	Likert	Successful RCM Implementation	2a
4	School/college leaders at my institution were supportive of the change to responsibility center management.	Likert	Successful RCM Implementation	2a
5	Before implementation of responsibility center management, my institution had a clear and widely shared implementation strategy and timeline.	Likert	Successful RCM Implementation	2b
6	My institution implemented responsibility center management in line with its strategy and timeline.	Likert	Successful RCM Implementation	2b
7	My institution devoted sufficient resources (personnel, financial, information technology) to responsibility center management planning, implementation, and maintenance.	Likert	Successful RCM Implementation	2c
8	My institution's version of responsibility center management was adapted to meet institutional needs.	Likert	Successful RCM Implementation	2d
9	My institution successfully implemented its version of responsibility center management.	Likert	Successful RCM Implementation	2
10	My institution decided to implement responsibility center management as a response to financial constraints.	Likert	n/a	n/a
11	My institution has a clear operational manual and operations procedures related to its new financial model and is operating in accordance with both.	Likert	Successful RCM Implementation	2b
12	My institution provides ample training for employees at all levels of the institution.	Likert	Successful RCM Implementation	2c
13	My institution has sufficient financial, technical, and personnel resources to operate its new financial model effectively.	Likert	Successful RCM Implementation	2c
14	Leaders in my institution have relevant performance indicators that are regularly monitored and addressed.	Likert	Successful RCM Implementation	2d

Q#	Survey Question	Type	Research Question	RQ#
15	If an aspect of the new financial model does not meet the needs of the institution, leaders work to make changes.	Likert	Successful RCM Implementation	2d
16	Most often, central executive leaders make decisions that affect all other organizations and people in the institution.	Likert	RCM Practices	1c
17	People at all levels of my institution make decisions that affect the overall direction of the institution. Bottom-up decision-making occurs very often.	Likert	RCM Practices	1c
18	The units in my institution have the duty and the power to make financial decisions that help them advance and fulfill their missions.	Likert	RCM Practices	1c
19	The units in my institution have the duty and the power to make non-financial decisions that help them advance and fulfill their missions.	Likert	RCM Practices	1c
20	Leaders in central offices and schools/academic units in my institution are working together effectively to achieve the best for the institution.	Likert	Successful RCM Implementation	2a
21	Leaders in central offices and schools/academic units in my institution understand their respective roles and responsibilities in the institutional budget process.	Likert	Successful RCM Implementation	2a
22	Direct costs, such as the salaries for personnel employed by units, are attributed to the units that generate them.	Likert	RCM Practices	1a
23	Indirect costs, such as allocated costs for information technology and facilities, are attributed to the units that generate them.	Likert	RCM Practices	1a
24	Direct revenues, such as tuition and facilities & administrative (F&A) recoveries, are attributed to the units that generate them.	Likert	RCM Practices	1b
25	My institution has clear and worthwhile incentives for units that practice sound financial decision making.	Likert	RCM Practices	1d
26	My institution’s academic and central managerial leaders effectively work together to steer the university to adapt to expanding and changing demands.	Likert	Successful RCM Implementation	2e

Q#	Survey Question	Type	Research Question	RQ#
27	My institution has expanded the number and/or size of cross-institutional and/or outward-facing units, such as interdisciplinary, project-oriented research centers, professionalized outreach offices, and other non-traditional units.	Likert	Successful RCM Implementation	2e
28	My institution has increased its efforts to diversify its funding sources (e.g. increased emphasis on grants and contracts, industry funding, philanthropy, etc.).	Likert	Successful RCM Implementation	2e
29	My institution's academic departments have largely embraced the changes associated with responsibility center management implementation.	Likert	Successful RCM Implementation	2e
30	My institution's academic departments have modified their behaviors or activities as a result of responsibility center management implementation.	Likert	Successful RCM Implementation	2e
31	The prevalence of innovative and entrepreneurial activities at my institution have increased since implementation of responsibility center management.	Likert	Successful RCM Implementation	2e
32	In what ways do you believe the implementation of responsibility center management changed the way your institution operates?	Open	both	both
33	In what ways did a shift in roles, responsibilities, and/or authority occur as a result of responsibility center management implementation?	Open	both	both
34	In what ways have you or your organization experienced any positive effects of responsibility center management?	Open	both	both
35	In what ways have you or your organization experienced any negative effects of responsibility center management?	Open	both	both
36	What, if any, changes would you make to the responsibility center management model at your institution?	Open	both	both
37	What would you say are the most important features of your institution's responsibility center management model?	Open	both	both
38	What advice would you give to institutions researching responsibility center management or just beginning their planning process?	Open	both	both

Q#	Survey Question	Type	Research Question	RQ#
40	Please provide any additional comments about responsibility center management at your institution below.	Open	both	both
41	What best describes your position in your institution?	Multiple choice	n/a	n/a
42	What best describes your job?	Multiple choice	n/a	n/a
43	What best describes the unit in which you work?	Multiple choice	n/a	n/a
44	For how many years have you worked at your institution?	Multiple choice	n/a	n/a
45	Were you employed at your institution prior to its implementation of responsibility center management (RCM)?	Yes/No	n/a	n/a
46	For how many years have you worked in higher education?	Multiple choice	n/a	n/a

APPENDIX F: EMAIL INVITATION FOR SURVEY

Dear [Name],

I am a doctoral candidate in the Center for the Study of Higher Education at the University of Virginia's Curry School of Education. Additionally, for full disclosure, I am an employee of the University of Virginia's Curry School of Education. I am writing you to request your participation in a research study I am conducting as part of my dissertation research. My study examines the effects of responsibility center management on institutions of higher education, specifically, public R1 institutions that have implemented responsibility center management. You were chosen for this study because of your role within your institution and/or because you were recommended for the study by a colleague. This study has been approved by the University of Virginia's Institutional Review Board and has approval from your institution's IRB to proceed.

The purpose of the study is to examine the effects of responsibility center management. Specifically, this study seeks to answer the following questions:

1. To what degree do institutions that adopt responsibility center management successfully implement its practices?
2. To what degree do institutions that adopt responsibility center management achieve success in their implementations?

Institutions are adopting RCM and RCM-like models at an increasing rate in the United States, yet there is little academic research on this management innovation. Findings from this study will help inform the decisions of institutions looking to adopt RCM in the future.

This survey asks you questions about your experiences with and opinions of responsibility center management at your university. You do not need to provide any contact information while completing the survey; your response will remain confidential. The institutions represented in the study will be given pseudonyms and broad descriptions will be used to present the institutions. Position titles will also be aggregated so as not to link comments to direct position titles, e.g. "University leader" rather than "Provost."

If you believe that others within your institution would provide valuable insights to this study, please feel free to send their contact information to the researcher at kwalker@virginia.edu so they can be added to the survey.

If you agree to participate in this study, please complete the online survey at [URL ADDRESS].

If you have any questions about the study, please feel free to contact me at kwalker@virginia.edu or 602-750-1607.

Thank you for your consideration! Your input will be valuable to institutions planning a change to RCM and RCM-like models in the future. I would be happy to provide you with a copy of the report at the conclusion of the study.

Best,
Katie

Katie Walker
PhD Candidate
Director of Budget
Curry School of Education
University of Virginia
kwalker@virginia.edu

APPENDIX G: FIRST FOLLOW-UP EMAIL FOR STUDY

<NAME>, if you have already completed my survey, I send my sincerest thank you! My apologies if you have completed the survey and are receiving this message – the survey is anonymous, so I cannot tell those invitees who have responded from those who have not.

If you have not responded, I would still love to have your voice represented in the survey, which you can find at <URL>. Keep in mind, this survey is meant to collect a wide variety of voices within RCM institutions, so please consider submitting if you have 15-20 minutes to spare.

I will happily send results to anyone who requests them, and, if you have already emailed me, I have marked you down to receive results at the conclusion of the study. I look forward to contributing to the body of knowledge available to higher education administrators considering a change to or implementing RCM, as I believe it could be very useful to increase the effectiveness of implementations.

Again, thank you for your time,
Katie Walker
PhD Candidate
Director of Budget
Curry School of Education
University of Virginia
kwalker@virginia.edu

Previous message:

Dear <NAME>,

I am a doctoral candidate in the Center for the Study of Higher Education at the University of Virginia's Curry School of Education. Additionally, for full disclosure, I am an employee of the University of Virginia's Curry School of Education. I am writing you to request your participation in a research study I am conducting as part of my dissertation research. My study examines the effects of responsibility center management on institutions of higher education, specifically, public R1 institutions that have implemented responsibility center management. You were chosen for this study because of your role within your institution and/or because you were recommended for the study by a colleague. This study has been approved by the University of Virginia's Institutional Review Board and has approval from your institution's IRB to proceed.

The purpose of the study is to examine the effects of responsibility center management (RCM). Specifically, this study seeks to answer the following questions:

1. To what degree do institutions that adopt responsibility center management successfully implement its practices?
2. To what degree do institutions that adopt responsibility center management achieve success in their implementations?

Institutions are adopting RCM and RCM-like models at an increasing rate in the United States, yet there is little academic research on this management innovation. Findings from this study will help inform the decisions of institutions looking to adopt RCM in the future.

This survey asks you questions about your experiences with and opinions of responsibility center management at your university. You do not need to provide any contact information while completing the survey; your response will remain confidential. The institutions represented in the study will be given pseudonyms and broad descriptions will be used to present the institutions. Position titles will also be aggregated so as not to link comments to direct position titles, e.g. “University leader” rather than “Provost.”

If you believe that others within your institution would provide valuable insights to this study, please feel free to send their contact information to the researcher at kwalker@virginia.edu so they can be added to the survey.

If you agree to participate in this study, please complete the online survey at <URL>.

If you have any questions about the study, please feel free to contact me at kwalker@virginia.edu or 602-750-1607.

Thank you for your consideration! Your input will be valuable to institutions planning a change to RCM and RCM-like models in the future. I would be happy to provide you with a copy of the report at the conclusion of the study.

Best,
Katie

Katie Walker
PhD Candidate
Director of Budget
Curry School of Education
University of Virginia
kwalker@virginia.edu

APPENDIX H: SECOND FOLLOW-UP EMAIL FOR STUDY

<NAME>, if you have already completed my survey, I send my sincerest thank you! My apologies if you have completed the survey and are receiving this message – the survey is anonymous, so I cannot tell those invitees who have responded from those who have not.

The survey will remain open through <DATE>. If you have not responded, I would still love to have your voice represented in the survey, which you can find at <URL>. Keep in mind, this survey is meant to collect a wide variety of voices within RCM institutions, so please consider submitting if you have 15-20 minutes to spare.

I will happily send results to anyone who requests them, and, if you have already emailed me, I have marked you down to receive results at the conclusion of the study. I look forward to contributing to the body of knowledge available to higher education administrators considering a change to or implementing RCM, as I believe it could be very useful to increase the effectiveness of implementations.

Again, thank you for your time,
Katie Walker
PhD Candidate
Director of Budget
Curry School of Education
University of Virginia
kwalker@virginia.edu

Previous message:

Dear <NAME>,

I am a doctoral candidate in the Center for the Study of Higher Education at the University of Virginia's Curry School of Education. Additionally, for full disclosure, I am an employee of the University of Virginia's Curry School of Education. I am writing you to request your participation in a research study I am conducting as part of my dissertation research. My study examines the effects of responsibility center management on institutions of higher education, specifically, public R1 institutions that have implemented responsibility center management. You were chosen for this study because of your role within your institution and/or because you were recommended for the study by a colleague. This study has been approved by the University of Virginia's Institutional Review Board and has approval from your institution's IRB to proceed.

The purpose of the study is to examine the effects of responsibility center management (RCM). Specifically, this study seeks to answer the following questions:

1. To what degree do institutions that adopt responsibility center management successfully implement its practices?
2. To what degree do institutions that adopt responsibility center management achieve success in their implementations?

Institutions are adopting RCM and RCM-like models at an increasing rate in the United States, yet there is little academic research on this management innovation. Findings from this study will help inform the decisions of institutions looking to adopt RCM in the future.

This survey asks you questions about your experiences with and opinions of responsibility center management at your university. You do not need to provide any contact information while completing the survey; your response will remain confidential. The institutions represented in the study will be given pseudonyms and broad descriptions will be used to present the institutions. Position titles will also be aggregated so as not to link comments to direct position titles, e.g. “University leader” rather than “Provost.”

If you believe that others within your institution would provide valuable insights to this study, please feel free to send their contact information to the researcher at kwalker@virginia.edu so they can be added to the survey.

If you agree to participate in this study, please complete the online survey at <URL>.

If you have any questions about the study, please feel free to contact me at kwalker@virginia.edu or 602-750-1607.

Thank you for your consideration! Your input will be valuable to institutions planning a change to RCM and RCM-like models in the future. I would be happy to provide you with a copy of the report at the conclusion of the study.

Best,
Katie

Katie Walker
PhD Candidate
Director of Budget
Curry School of Education
University of Virginia
kwalker@virginia.edu

APPENDIX I: INFORMED CONSENT AGREEMENT FOR STUDY

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study.

Purpose of the research study: The purpose of the study is to understand the effects of responsibility center management implementation on institutions of higher education. The responses you provide will provide more information to institutions looking to adopt responsibility center management.

What you will do in the study: For this study, you will complete an online survey that asks you open-ended and multiple-choice questions about responsibility center management at your institution. In order to complete the survey, you will need to complete the multiple-choice questions. You may opt to skip the open-ended questions if you do not wish to answer them.

Time required: The survey will require about 20 to 40 minutes of your time.

Risks: There are no anticipated risks in this study.

Benefits: There are no direct benefits to you for participating in this research study.

Confidentiality: You will not be asked to provide contact information, but you will be asked to provide general information about your position at your institution. Your responses to the survey will be kept confidential.

The information that you give in the study will be handled confidentially. Because of the nature of the data, it may be possible for the researcher to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you or allow those consuming the data to deduce your identity. When the study is completed and the data have been analyzed, the individual survey responses will be destroyed. Your institution’s name will not be used in any report.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you would like to withdraw from the survey, you may exit without submitting. If you submit the survey, the researcher will not be able to withdraw your submission, as it will not have your name for identification purposes. There is no penalty for withdrawing at any point of the study.

Payment: You will receive no payment for participating in the study.

If you have questions about the study, contact:
Katie Walker
Educational Leadership, Foundations, and Policy, Bavaro Hall 306
University of Virginia, Charlottesville, VA 22903
Telephone: (434) 243-4585
Email: kwalker@virginia.edu

Brian Pusser, Ph.D.
Educational Leadership, Foundations, and Policy, Ruffner Hall 290
University of Virginia, Charlottesville, VA 22903
Telephone: (434) 924-7731
Email: bp6n@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr. Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: www.virginia.edu/vpr/irb/sbs

Agreement:
By proceeding to the survey, I agree to participate in the research study described above.

[button to move to survey]

At the conclusion of the survey, you will receive a copy of this form for your records.