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Transforming Business Processes in Higher Education

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Introduction

Across the United States, institutions of Higher Education are adopting business sector quality improvement methodologies such as Lean and Six Sigma to increase operational efficiency, simplify business processes, and create a culture of continuous quality improvement (CQI). In a recent review of Lean initiatives in Higher Education (Balzer, Francis, Krehbiel, & Nicholas, 2016), the authors found that improvements attributed to adopting Lean are measurable and significant in both administrative and academic operations, and effective at departmental levels as well as across the institution. The authors also note that for maximum benefit to be achieved when adopting Lean in Higher Education, institutions must incorporate long-term, strategic planning.

Institutions which have adopted CQI processes include the University of Virginia, the University of Notre Dame, and North Carolina State University. Here at the University of North Carolina-Chapel Hill, the Bain report (Relations, The University of North Carolina at Chapel Hill Cost Diagnostic: Final Report Summary July 2009, 2009) in 2009 revealed that our administrative expenses per student grew faster than our academic expenses, and our multi-layered, complex organizational structure essentially bred inefficiencies. In response to this report, former Chancellor Holden Thorp launched a campus-wide initiative called Carolina Counts, to streamline operations and boost efficiency. Over the course of 4 fiscal years, the Carolina Counts initiative saved UNC an impressive \$160.1 million in state funds (Relations, Carolina Counts Reaps \$58

Million in Savings, 2013). However, the Carolina Counts initiative was discontinued after 2013. Our team originally planned to focus on an argument for reinstating a campus-wide CQI initiative. We soon learned that the campus, under the leadership of Provost Blouin, had already embarked on a Carolina Excellence initiative to begin tackling widescale process inefficiencies. In consultation with the administrators charged with this effort, we adjusted our project to focus on information-gathering from key sources both internal and external to UNC-Chapel Hill. This report details what we learned, and what we recommend, in order to ensure the success of the new Carolina Excellence initiative. We begin with a review of the data-driven process improvement methodologies that have transferred well from industry to higher education.

Selected Process Improvement Methodologies Review

Six Sigma: The Business media defines Six Sigma as an extremely technical methodology used by engineers and statisticians to improve products and processes. In addition, Six Sigma is also defined as a goal that is almost perfect in meeting customers' requirements. However, the accurate term for Six Sigma refers to a statistically derived performance target of operating with only 3.4 defects for every million activities or chances. Measures and statistics are a key component of improvement for Six Sigma, but there are other components as well (Pande & R.P., 2000). The components for improvement involve defining, measuring, analyzing, designing, and verifying (DMADV). In addition, the success of Six Sigma is based on five important principles: customer requirements, using measures and statistics analysis, understanding how work is done and identifying the problem, eliminating variation and continuous improvement of the process, implementing cross-functional Six Sigma teams, and being thorough and flexible (Graves, 2012). Six Sigma serves only one purpose, to streamline processes to produce the best products and services with the smallest errors or defects. Authors Micheal George and Robert Lawrence introduced Lean Six Sigma in their 2002 book "Lean Six Sigma: Combining Six Sigma with Lean Speed." The purpose of the book was to provide knowledge on refinement of lean enterprises and Six Sigma tenets. Lean Six Sigma management and Six Sigma originated from two different methodologies. One method is used to improve existing processes. The second method is utilized to create new processes and new products of services. Both concepts are vital to the role of employees (Spasojevic B. V., 2016).

Lean Management: The concept of lean management focuses on eliminating eight types of waste: defects, overproduction, waiting, non-utilized talent, transportation, inventory, motion, and extra-processing, known as “DOWNTIME.” “LEAN” is the method of measure or tools that help to identify and eliminate waste (Investopedia, 2018). Lean Six Sigma, the methodology used to fix a problem, uses five phases. This method can increase profits, lower cost, improve efficiency, effectiveness and help develop people and employees. The phases included in this process are: define the problem, measure – quantify the problem, analyze – identify the cause of the problem, improve – implement and verify the solution, and control – maintain the solution (DMAIC) (Investopedia, 2018). Bringing Lean and Six Sigma methodologies together creates a model which possibility leads to operational excellences. As companies and institution of higher education, utilize the Lean Six Sigma method they work towards achieving operational excellence. Larry Bossidy’s deployment team first used the term operational excellence, to describe their expanded Six Sigma Deployment at Allied Signal (now Honeywell). Operational Excellence is a concept that has four main categories. They are strategy deployment, performance management, high performance work teams, and process excellence. The concept is very popular, because organization are putting forth efforts to provide the best product or service at the lowest cost possible. By doing this it positions the United States in competition with foreign organization producing the same products (Lean Six Sigma Training Certification, 2018).

Organizational Excellence: Organizational excellence is defined as an ongoing process established to engage and motivate employees to fulfil customers’ expectations by delivering products and services, within the business expectations. Some of the well-known approaches to organizational excellence include the following: leadership, strategic planning, customer and market focus, process management, and business results. When managing organizational excellence, the successful outcomes require deliberate management and improvements in six key areas. These areas are information: (metrics, measures, and decision support), structure: (roles, responsibilities, and accountabilities of each functional area), people, (total human capital within the organization), rewards: (compensation and incentives), learning system: (knowledge and training), and work processes: interaction and linkage of workflows). Organizational excellence is reliant upon gaining adequate commitment to embrace and apply positive changes in the six key areas above (What is Organizational Excellence?, 2018).

Continuous Quality Improvement (CQI): CQI is a management approach based on the idea that the majority of processes can be improved and ultimately be more efficient. The CQI method focuses on routine changes that occur day-to-day within the organization. CQI has a set of concepts and methods applied to the processes. These processes shift the attention from employees in the organization to the processes and products, in an attempt to satisfy internal employees and external customers. A popular CQI method using a 4-step cycle known as PDCA: plan: (actions required to reach the desired goals are identified), do: (plans of actions implemented), check: (collection and analyze and evaluation – to determine if goals have been achieved, and act: (if goal is achieved, the process becomes a part of the organization’s routine). The CQI requires teamwork that is applied in industries, institutions, and healthcare (What is Continuous Quality Improvement?-Definition & Process, 2018).

Operational Excellence at UNC-CH: A Brief History

Both the University and the UNC Systems Office have launched organizational excellence initiatives this past decade.

UNC Finance Improvement and Transformation (UNC FIT): In October 2008, in response to an operational assessment conducted by Ernst & Young, UNC System President Erskine Bowles announced an effort to strengthen the control environment across all campuses and align UNC people, process, and technology by implementing business process improvements and laying the groundwork for centralization of certain back office financial operations. The initiative was called UNC Finance Improvement and Transformation (UNC FIT). Over the next five years UNC FIT accomplished process improvements in areas such as contracts and grants, general accounting, financial aid, capital assets, and student accounts. Other projects included the implementation of a shared services center for the payroll processing of nine campuses and a shared services center for e-procurement.

However, in December 2013 a report from the Program Evaluation Division of the NC General Assembly detailed several deficiencies with the effort and recommended a “more centralized and coordinated operation to manage efficiency efforts as well as establish performance metrics and

accountability reporting for both system and campus level efficiency programs (Assembly, 2013). In response to that report, in April 2014, UNC FIT was reorganized and became the Division of Compliance and Operational Efficiency. When announcing the reorganization UNC System COO Charles Perusse stated, “the change will better enable the successful transfer of efficiency project results and accountability reporting into the operations of General Administration in the future (Bowles, 2008). Within months, the associate vice president of the new division left the system office to become the vice chancellor for business and finance at Fayetteville State University.

The Bain Report: Concurrent with UNC FIT, the University had a similar initiative launched because of an external review. In July 2009 the University released a report from the consulting firm Bain & Company which identified options for lowering operational costs via more efficient and effective operations. Bain’s analysis found that from 2004-2008 administrative expenses had grown faster than academic expenses. Another key finding was that the university’s complex organization structure was the cause of multiple inefficiencies. The report identified ten potential options for improving efficiency and effectiveness (Bowles, 2008) The economic crisis of 2008 and the resulting state budget spending freezes enacted for the 2008-09 fiscal year gave the Bain study added focus and attention. Not surprising, the report was widely shared across the UNC System institutions.

Chancellor Holden Thorp responded with the rollout of Carolina Counts, a program tasked with implementing the recommendations from the Bain report. Beginning in November 2009 Carolina Counts designated champions for each of the areas identified for major improvements.

Mission: to make the University of North Carolina at Chapel Hill the most collaborative, well-managed university in the country.

Objectives

- *Streamline campus operations and provide more funding for academics and University’s core missions*

- *Implement simpler, more responsive systems and processes that enable informed decision-making while complying with policies and laws*
- *Reduce bureaucracy and create a more satisfying work environment for faculty and staff*

The program focused on streamlining cost structures in schools and central functions, analyzing and making available comparative operational information, and developing a campus model for shared service centers. Impressive cost savings were announced for each fiscal year shown below totaling more than \$160 million of cumulative savings.

- FY 2009-10 \$21.8M
- FY 2010-11 \$32.7M
- FY 2011-12 \$48.3M
- FY 2012-13 \$58.1M

The same report from the Program Evaluation Division which had dinged UNC FIT offered Carolina Counts praise saying it was the “closest example of a comprehensible approach to operational efficiency within the UNC system (Assembly, 2013).

However, the Carolina Counts initiative was discontinued after 2013.

UNC Finance and Operations Service Center of Excellence: In October 2016 the University’s Division of Finance and Administration (later renamed Finance and Operations) launched the Service Center of Excellence (SCE), a shared services center to support the finance, human resources, information technology, and communication needs of the Division. The SCE provides service delivery to “absorb transactional activity previously performed by generalist staff across the division.” The transition from a central services model to that of shared services took place over 15 months and included surveys and input from the existing staff and advisory groups.

SCE Mission: to serve as the efficient, reliable single business support center for the Division of Finance and Operations — providing business solutions and strategic guidance — to enable Carolina to move at the speed of innovation.

One of the five guiding principles of the SCE is *Innovation and Continuous Improvement* which they define as thinking outside the box and bringing new ideas to life. To support that principle the SCE offers the **Continuous Improvement, Staff Development and Engagement (CISDE)** team to facilitate all training needs of the division. CISDE evolved from the Finance divisions prior Office of Continuous Improvement and Business Intelligence. That office had been created in 2015 following the university's transition to Connect Carolina and to "improve business processes and transform the University's use of business data to drive strategic decision making (Fajack, 2015).

CISDE provides staff development and training support as well as business process improvement consultation to Finance division employees. A few CISDE employees are Lean-certified and offer consultation and guidance on proposed improvement projects within the Finance division.

"The Lean methodology provides a framework for employees to work together as a team to define the problem, identify the root cause, and implement a data-driven solution that reduces waste and increases customer satisfaction. A lean organization understands the customer value stream and focuses on improving processes to deliver greater value (Operations, 2018).

One feature of the CISDE office is the Lean Corner. The Lean Corner is an open workspace offering a variety of process improvement tools and templates. It is also a reservable meeting space designed to allow employees the opportunity to brainstorm, map processes or identify ways to increase efficiency.

Carolina Service: In January 2017 UNC began planning for Carolina Service, an initiative to create more efficient and effective ways of delivering services and sharing resources in the areas of human resources, finance, information technology, research administration and communications. The goal was to become nimbler as an organization by handling common business and administrative functions in new ways. Chancellor Folt stated, "moving forward with Carolina Service allows us to evaluate how we work and re-think how we will work in the future. We have

a bright future ahead, and I know our dedicated employees are invested in making sure we are doing all we can to achieve our mission (Gazette, 2017). The planning phase included focus groups, one-on-one interviews, and surveys to benchmark current service activities and customer satisfaction. The University contracted with the Huron Consulting group to facilitate the development of Carolina Service. Huron had recently supported several other university projects including the planned transition to an Incentive-Based Model/Responsibility Center Management (RCM) budget model and the transformation of the Office of Sponsored Research.

The design phase of Carolina Service continued for several months until new Provost Robert Blouin decided to pause the effort due to its focus on cost savings rather than efficiency.

ULEAD Project Evolution

As stated in the introduction, the project deliverable was initially going to be actionable recommendations to develop a university-wide initiative to disseminate Lean/Six Sigma practices and provide guidance/consulting/leadership/execution for specific, proposed process improvements. We expected to review prior UNC efforts regarding continuous quality improvement initiatives as well as research into efforts at similar institutions, and then discuss the feasibility of our recommendations with current campus leadership and directors of individual units within UNC that have already incorporated these concepts into their units.

In September, Rick Wernoski started his new role as Senior Vice Provost, tasked with business process improvements for UNC Chapel Hill. Our team learned that “Operational Excellence” is one of the Provost’s top University priorities for the next 18-24 months, and an immediate initiative was already underway with senior university leadership. This exciting development confirmed the initial sense that continuous quality improvement has the potential to be a timely and meaningful shift in the university culture and procedures, but the shift also complicated our immediate ULEAD project.

Our ULEAD team met with Rick and Susan Kellogg, a consultant on the project, in late September to discuss how our project could work synergistically with their plan. During that conversation, we learned that currently the Operational Excellence team is on a listening tour with Vice Chancellors,

deans, and others across campus. In their conversations with these University leaders, they are asking what is and isn't working, and they emphasized that communication on the front end is key to their future success. McKinsey is consulting on the new initiative, but they are serving in an advisory role and not leading it. The new Operational Excellence project is different from some of the other university initiatives because it is not driven by cost, but by efficiencies.

There is no predetermined outcome for how they will proceed at the end of their listening tour, so it was crucial that our ULEAD project avoid messaging about a proposed path to implementation. Instead, we were invited to focus on the history of attempts at UNC, do an external listening tour to supplement their internal listening tour, and do a "beer tour" so that they can consider a bottom-up approach to identifying "early impact" points for implementation as they evaluate how to keep the end-user in mind. Finally, one of the gaps that they want to fill is that their listening tour needs to be communicated back to the community to show that they really listened and communicate what they learned, so we are soliciting communication input from UNC employees.

Research – External Interviews

We conducted interviews with representatives from five higher educational entities. This group consists of both peer and non-peer institutions which were chosen because they represent diverse approaches to operational excellence, all of which are considered successful. Questions 1-3 are listed below, and the responses are recorded in the table immediately following the questions.

Questions #1-3:

- 1. *Were there barriers to launching your CQI initiative/office/unit? If so, what were they and how were they overcome?***
- 2. *What key communication strategies were used before, during and after launch?***
- 3. *Was/is an external consultant a part of the process? If so, what were the role(s) and value added?***

The institutions' responses follow.

	<i>Barriers</i>	<i>Communication Strategy</i>	<i>External Consultant</i>
University of Virginia	No	Leadership Council	None at launch; Sometimes now; project dependent
Clemson University	No	Not strategic; word of mouth	Yes (Drew Locher) Training
University of Illinois System	No	Not strategic; ebb and flow in volume	No
North Carolina State University	No	N/A	N/A
Notre Dame	No	N/A	Yes, at launch

Question #4:

4. What key pieces of advice (hindsight being 20/20) would you be willing to share with other institutions considering adopting a campus-wide approach to CQI?

University of Virginia: Organizational Excellence [Interviewees: Sarah Collie (Associate Vice President) and Mary Brackett (Senior Associate)]

A strong executive sponsor/champion is critical. The Chair of the Leadership Council for the first four years was a Dean. Great thought and care were given to establishing and maintaining an appropriate academic/administrative balance for Leadership Council. Central to their communication plan are three key messages: 1) organizational excellence involves everyone; 2) we can't be all things to all people; 3) while cost-savings is not the driver, we can expect to save money as processes become more efficient. It is important to speak to people in plain English, don't use CQI jargon, for example, or Kaizen board. Even when using consultants, consider the practice of only University employees be client-facing. Start small: find one or two processes to

improve and your success will quickly spread across campus. The buy-in will increase from there. This is about culture change, and that is always tough.

Clemson University: Lean Office [Interviewees: Lisa Knox (Director) and Kathy Dively (Senior Consultant)]

Figure out how/what/when you will report out. Reporting the financial savings is important, but also figure out how to report on the more difficult aspects such as re-allocating full-time employees (FTE), and re-purposing roles. Share with people what they can do immediately. Large scale processes will take time, and it helps to experience little wins.

University of Illinois System: Office of the Chief Information Officer, Business Office Improvement Shared Service [Interviewee: Amy Glenn (Assistant Director)]

Pick a methodology early-on in the process, stick with it, and perfect it. They developed their own called RAPID, which is a cross between DMAIC (Define, Measure, Analyze, Improve and Control) and Kaizen (a strategy marked by engagement of employees at all levels, from the CEO on down). Consider membership in the Network for Change and Continuous Innovation (NCCI). NCCI is a non-profit organization whose vision, as stated on their website (www.ncci-cu.org), is to position higher education institutions to be agile, lifelong learning models to transform lives and communities around the world. The networking among members allows information sharing and provides opportunities to brainstorm and learn from and with colleagues.

North Carolina State University: Industry Expansion Solutions (IES), Extension, College of Engineering [Interviewee: Gene Smith (Director of Operations)]

Start small, with an early adopter - one college or unit. Leverage the success of the early adopter to become University-wide. Leaders may want to attack the biggest pain point, but that may not necessarily be the right place to begin. A steering committee is helpful to assess projects.

Successful LEAN processing is 20% technical and 80% cultural; do whatever you can to affect culture change.

Notre Dame: Office of Sustainability [Interviewee: Carol Mullaney (Director of Sustainability and Continuous Improvement)]

Do as much research as you can to develop an initiative and pick a methodology that is well-suited to your campus culture. For example, Notre Dame's data-centric and data-informed culture matches well with Lean Six Sigma, which is their chosen methodology.

Research – Internal Interviews

In addition to our research of other universities, and in an effort to supplement the current campus listening tour, we also contacted personnel internal to UNC via interview and Qualtrics survey. We received feedback from 15 frontline managers at UNC, including some of our ULEAD classmates.

In some of the literature about this topic, researchers noted that “a unique feature of data-driven universities (as compared to corporations) is that the focus must be...supporting frontline managers (e.g., associate deans, directors, college business managers, etc.). Unlike private sector organizations where the majority of important decisions are made at the top, in shared governance organizations, the locus of decision making is dispersed across the academy (Board, 2014).

We asked these four questions.

- ***#1 – What do you see as the opportunities for improvement? What pain points might we run into?***
- ***#2 – How should implementation of this initiative be prioritized?***
- ***#3 – Are you aware of any lessons learned from previous efficiency efforts at UNC or other institutions you've been a part of?***

- **#4 – Recognizing that a thoughtful communication strategy is vital, what's the best way to communicate and receive information from you?**

The responses essentially fell into these three categories:

- Development of the initiative.
- What applications/projects/processes were ripe for improvement.
- Thoughts on communication.

Development

In regards to development of an operational excellence initiative at UNC, these were the most common responses.

- **It must address previous efforts – why will this be any different?**
- **It must be led by efficiency improvements, not cost-cutting.**
- **It must be approached as culture change, not just process improvements.**
- **Small early wins: low effort – big impact.**
- **Set aggressive goals.**

Many respondents felt that from the outset, it was important to distinguish this new approach from its predecessors. They have seen previous efforts consume significant resources only to be discontinued. The success of this initiative depends on campus-wide engagement and investment, so its leaders must demonstrate that the University is committed for the long-term.

Respondents also echoed what the current initiative's steering committee has already been emphasizing – that the focus must be on efficiency, not cost-cutting. One may follow the other, but cost-savings feels less inspiring and less constructive, and focusing on it rather than efficiency could lead us in the wrong direction.

UNC attracts stellar talent, and they/we want to operate at our peak. We want to bring our full skillsets to bear on our areas of responsibility, our careers of choice. When folks find themselves distracted from their true work by red tape, they can grow frustrated, disillusioned, or worse, apathetic. Operational efficiency is a recruitment and retention issue.

“...For those of us who lived through Carolina Counts and Carolina Service, how will this be different? This is an opportunity for us to work better and smarter... This is an opportunity for people to do higher-level work.”

There was also a common recognition that this will be a major change for UNC, and it should be treated as such. We’re talking about changing the mindset of the staff, faculty, and students.

One way for the initiative to gain momentum is to prove itself with small key early wins, and to share these stories across campus.

And respondents seemed to acknowledge that there is a lot of room for improvement, and that setting aggressive goals with respect to project size and schedule is important.

Applications / “Projects”

As far as what types of applications or “projects” might be targeted for process improvement, we are essentially seeking those processes where people are pushing actual pieces of paper, reporting similar data in different formats or using different software, and clinging to manual processes instead of tried and true digital options – anywhere the mission of the University is being compromised by inefficiencies.

The most common responses were:

- **Hiring**
- **Reimbursements**

“Ridiculously long turn arounds on background checks and offer letters are costing us key recruits.”

Respondents felt like the hiring process in particular – the multiple forms, back and forth approvals, lengthy background checks – was resulting in the University losing good people.

Also, State employees having their personal finances tied up for months at a time in the painful reimbursement process was a common and high-impact problem.

Communication

As for the preferred means of communication, the responses were as varied as they were emphatic. All formats – general emails, targeted emails, town hall meetings, small group meetings, surveys – were submitted as responses. The goal is to engage everyone – and we’re all different, what works for some will not work for others.

People also felt that for communications to be effective they needed to be transparent – to acknowledge what is working and what isn’t – rather than sugar-coating the updates which could lead to credibility issues.

Also, and we know the current steering committee is working on this, our respondents echoed the need for a continuous feedback loop throughout all stages of the initiative. Additionally, many wrote that the end users of the process absolutely must be consulted when proposing changes, because they are the ones who know them best. This can also reduce steps being added back into a streamlined process after rollout.

“I would make sure that our reimbursement process is improving. All of these areas where people, who are being paid less than the private sector, are losing money seem like high priorities and potentially really high impact as well.”

Recommendations

After review of literature on the topic, the history of previous efforts at UNC, study of what other institutions are doing, as well as what we need at UNC specifically, our team has developed the follow recommendations for the current Operational Excellence initiative at UNC.

Approach as culture change

Overcome risk aversion. Executive leadership must make it safe to “focus on innovation, not optimization” – to experiment, fail, adjust, iterate. Otherwise we could see underinvestment or sluggish adoption. University Mission refers to “charting a bold course of leading change”!

Break down silos. Silo effect can lead to a narrow or incomplete understanding of the problem and, as a result, ineffective solutions. Sometimes it can result in a diluted sense of responsibility. We hope the new Operational Excellence initiative will be collaborative across all departments.

Focus on the user experience. When we evaluate existing processes from the perspective of the people who use them - our staff, faculty, and students – we are more likely to develop cogent, consistent improvements that really make an impact (Board, 2014).

Address the elephant in the room – what makes this initiative different from its predecessors?

Demonstrate credibility and earn buy-in early by distinguishing this initiative from Carolina Counts and Carolina Service. We have learned from those efforts, perhaps chiefly that a focus on efficiency rather than cost savings is critical, as well as demonstrated commitment from a network of senior leaders.

Continuous communication – outwards and inwards

Use diverse formats to disseminate and request frequent, honest, and consistent information. Watch for discrepancies between system, campus, and department messages. Articulate improvement proposals in terms of institutional goals and priorities.

Make the data trustworthy

The data must be reliable and accepted. Perhaps by nature, University personnel want to question the validity of data. This is important, but it’s important to avoid getting stuck on this initial step. Some institutions, like Michigan (Board, 2014), set up central data centers with data analysts that standardized data for use by all departments.

The literature and our interviews also warned against sector-specific challenges for Universities in their pursuit of Operational Excellence being distracted by compliance to outside agencies and getting bogged down in committee (Goran, LaBerge, & Srinivasan, 2017).

Project launch External and internal interviewees stressed the importance of careful selection of early projects. Pick high visibility, straight-forward processes that are used by faculty and staff across all departments of the university that can relatively quickly be simplified for early small wins. Our external interviewees and relevant literature felt that equally important was careful selection of the department(s) to implement initial improvements. This department(s) should be particularly interested and capable of success.

Conclusion

Operational Excellence is not a trend – it is a well-developed and widely adopted means of raising the performance and the reputation of the University of North Carolina system. The new initiative at UNC-Chapel Hill led by Provost Blouin and Senior Vice Provost Wernoski is an opportunity for the campus to catch up to and surpass its peers. But it will be hard work. Success will mean a deviation from the status quo.

Success will not take the form of one carefully crafted rollout – success will be iterative and experimental. Success will require collaboration, and we encourage the campus to be open, optimistic, flexible, and part of the solution.

Our recommendations

Approach as culture change

Answer: Why will this time be different?

Communicate continuously

Make the data trustworthy

Select pilot project and pilot department carefully

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