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Strategic Use of Innovation in High Research Universities: Mission-Driven or Mission Drift? A Comparative Review of the Top 100 International Universities Recognized for Innovation

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STRATEGIC USE OF INNOVATION IN HIGH RESEARCH UNIVERSITIES:

MISSION-DRIVEN OR MISSION DRIFT?

A COMPARATIVE REVIEW OF THE TOP 100 INTERNATIONAL UNIVERSITIES

RECOGNIZED FOR INNOVATION

By Kate A. Montgomery

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DISSERTATION APPROVAL

This dissertation submitted by Kate Montgomery has been read and approved by the following faculty members of the Annette Caldwell Simmons School of Education and Human Development at Southern Methodist University. The final copy has been examined by the Dissertation Committee and the signatures which appear here verify the fact that any necessary changes have been incorporated and that the dissertation is now given the final approval with reference to content, form and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Education.

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Preface

This dissertation encompasses a culmination of my past professional experiences, academic interests, and a jumping off place for future work as a practitioner-scholar. I knew that this doctoral experience would be impactful, but perhaps not to the degree that has transpired. I am grateful for the village that got me to this point. The dissertation process inspired three international academic presentations in 2020 and corresponding publications from which excerpts have been included throughout this research. All work informed portions of Section I: Introduction and Section V: Summary of Findings, Limitations, Recommendations, and Conclusions. Particular references are highlighted below.

The first article was entitled "A longitudinal financial analysis of the University of Oxford: Traditional missions, innovations, and comparisons with select international high-research universities—Harvard, Stanford, and the National University of Singapore" ("International comparative financial analysis," Montgomery, 2020a). This work introduced the Reuters (2018a) Top 100: The World's Most Innovative Universities as a basis to begin a comparative analysis on select universities. The focus on finance in higher education provided a preliminary investigation that evolved into the Interdisciplinary Contextual Analysis referenced in Section III: Research Methods and Section IV: Data Collection and Analysis.

The second article, "An interdisciplinary look behind the top 100 international universities recognized for innovation: Geographically, historically, and financially" ("Interdisciplinarity and the Top 100," Montgomery, 2020b), expanded beyond the finance research to examine the Top 100 list (Reuters, 2018a). Specifically, the historical section was included in Section II: Literature Review. The geographic perspective, like finance, was included in the Interdisciplinary Contextual Analysis referenced in Section III: Research Methods and Section IV: Data Collection and Analysis. ATLAS.ti geospatial mapping software was also included in Sections III and IV in which the Top 100 institutions were featured along with the layering of historical and financial data for a visual interdisciplinary display of findings.

The third article, "Unpacking mission statements of international universities recognized for innovation" ("Unpacking mission statements," Montgomery, 2021), built upon the findings in the first two articles and examined my first research question (RQ 1: How do highly innovative universities communicate traditional missions and innovation in their mission statements?). This research was grounded in institutional theory as referenced in Section II: Literature Review. Section III: Research Methods included the methodology of examining mission statements of the Top 100. The content analysis included coding and "quantitizing" the qualitative data (Saldaña, 2016) at the aggregate and select institutional levels. In addition to the four universities selected for the financial study (Montgomery, 2020a), two additional universities (University of Tokyo and KU Leuven) were selected – totaling six of the ten universities that were closely examined in Phases I and II of Section IV: Data Collection and Analysis.

I am very appreciative of the support from my dissertation chair Dr. Ashley Tull, committee members, Dr. Denisa Gándara and Dr. Meredith Richards, and faculty in the Education Policy and Leadership Department at Southern Methodist University. I would also

like to thank my fellow doctoral candidates, Brooke Guelker and Kathleen Furr, along with our cohort for their constant willingness to offer critiques, collaboration, and general support.

I am also fortunate to work with impressive colleagues in the Graduate Liberal Studies Program at SMU and the national Association of Graduate Liberal Studies Programs over the years who constantly remind me of the great traditions and ideals of higher education that offer timeless, contemporary impacts. Additionally, I am appreciative of Higher Education Futurist, Bryan Alexander, for not only inspiring my work and future academic interests, but for personally taking time the morning of my defense to visit on important topics related to this research.

Most importantly I am grateful for my ever-patient and supportive family. Cheers to the many who have made this feat possible!

Abstract

This research supports some of the mounting pressures higher education practitioners face in approaching innovation strategically while recognizing the mission-driven needs of the institution. Two research questions were examined. First, how do highly innovative universities communicate traditional missions and innovation in their mission statements? Second, to what extent do innovation strategies align as stated in their strategic plans with their mission statements? This research was grounded in institutional theory given the breadth of literature linking this theory to institutional rhetoric such as mission statements. In addition, the theory provided relevancy to assessing the debate over legitimizing tendencies, such as symbolism and signaling, versus more meaningful utilitarian prose.

For the research design, the unit of analysis focused on the institutional level, specifically, the Top 100 international universities recognized for innovation by Reuters. Two phases were examined. Before moving into each phase, an interdisciplinary contextual overview was provided to examine geographic, historical, and financial factors on a macro basis. For Phase I, a content review of mission statements was examined for the Top 100 universities as publicly available. Concept and In Vivo Coding was conducted using ATLAS.ti software. In Phase II, a content review examined alignment of mission statements and strategic plans to assess mission-driven or mission drift evidence for select universities identified.

Four key findings ensued. First, the trifecta of university missions (teaching, research, and service) dominated mission statement incidence relative to innovation rhetoric. Second, innovation language within mission statements was largely comprised of general phraseology or reference to mission, not beyond mission (or drift). Third, the service component of mission tied to innovation beyond teaching and research was driven by societal influences. Fourth, societally-driven innovation provided the greatest potential for mission drift based on stakeholder perspectives. This research filled several gaps in the literature related to international higher education studies, the intersections of traditional university missions with innovation, and the critical use of ranking systems. It provided a vantage on interdisciplinary uses for ATLAS.ti software beyond the robust coding features, such as geospatial mapping.

Resulting recommendations for practitioners focused on mission statement optimization at student, program, and institutional levels, and alignment of strategic innovation with institutional missions. Recommendations for future research addressed the limitations identified as the use of the Reuters ranking system, macro-level analysis, and researcher positionality creating a U.S.-centric interpretation. Specifically, opportunities exist for expanded research studies such as qualitative interviews with stakeholders, longitudinal studies, explorations of additional institutional types through the lenses of other relevant theories (e.g., neo-institutional theory, resource dependency theory, and population ecology theory), and social network analyses given the extent of external actors involved.

In conclusion, innovation continues to be hotly contested in the higher education sphere as a mechanism for "high hopes or broken promises" (*Chronicle*, 2019, p. 59). In the current worldwide climate of the COVID-19 pandemic, the world is witnessing higher education institutions rapidly innovate programming and policies in real time as a means to adapt to pressing challenges, and in some cases, to maintain existentiality. It is also at this time, that great

emphasis is placed on focusing precious resources on initiatives supporting mission – the intersection of mission and innovation challenges higher education today and will continue to for years to come.

Keywords: Higher education institutions, mission, vision, innovation, strategic planning, mission statements, strategic plans, international, interdisciplinary, institutional theory, content analysis, comparative analysis.

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Reuters Ranking Methodology

This international comparative analysis examined mission and innovation incidence and alignment for the "Top 100" universities recognized for innovation (Reuters, 2018a). Rankings provided a jumping off place to examine the phenomenon of innovation in higher education worldwide. For reference, Reuters (2018b) utilized an algorithm to rank universities based on research expenditures, patent volume, patent impact, research published, research cited, and industry collaboration.

In addition to this research, I used the Reuters Top 100 ranking and methodology in work recently published by the Asian Conference on Education under the heading "Unpacking mission statements" (Montgomery, 2021); the European Conference on Education under the heading "Interdisciplinarity and the Top 100" (Montgomery, 2020b); and in the *Journal of Management Science and Business Intelligence* article titled "International financial comparative analysis" (Montgomery, 2020a).

List of Definitions

ATLAS.ti
ATLAS.ti (2020) is a CAQDAS software program with sophisticated capabilities to store, code, analyze, and map extensive files of text, images, audio, and video data.

CAQDAS Software
Computer Assisted Qualitative Data Analysis Software provides a repository of archival data for coding, annotating, and displaying data (Miles et al., 2014).

Categories
Categories represent many elements within the defined scope (Merriam & Tisdell, 2016), are more explicit relative to themes (Rossman & Rallis, 2003; Saldaña, 2016), and have been prescribed based on the research purpose and corresponding literature.

Concept Coding
Concept Codes assign meaning to the particular words identified (Saldaña, 2016) resulting from literature.

General Mission Phraseology Concept Code
Concept Code encompasses descriptive language related to institutional mission to include words such as mission and purpose and the mentioning of mission components (dependent on institutional type): teaching, research, and service for their respective communities (Morphew & Hartley, 2006).

General Innovation Phraseology Concept Code
Concept Code encompasses descriptive language related to innovation. Pool and Van de Ven (2004) described innovation more broadly as "the wellspring of social and economic progress, and both a product and facilitator of the free exchange of ideas" (p. xi).

Gross Domestic Product
The World Bank (2017) defined gross domestic product as an economic measure of domestic production at the national level. Figures are reported by each country with some adjustments made by the World Bank to achieve more consistent statistical comparisons as warranted.

In Vivo Coding
In Vivo Codes utilize the actual rhetoric, or verbatim, which in essence, bring the codes to life (Saldaña, 2016). The specific In Vivo Codes represent words and short quotations through the In Vivo Coding function within ATLAS.ti software.

Innovation
Poole and Van de Ven (2004) described innovation more broadly than technological advances alone as "the wellspring of social and economic progress, and both a product and facilitator of the free exchange of ideas" (p. xi).

Innovation Beyond Mission Concept Code
Concept Code encompasses new ideas, approaches, and actions not related to teaching, research, and service, the common elements of university missions.

Innovation Within Mission Concept Code
Concept Code encompasses new ideas, approaches, and actions related to the common elements of university missions – teaching, research, and service.

Interdisciplinarity
Interdisciplinarity fosters the opportunity to study complex topics from multiple perspectives (Holley, 2009).

Isomorphism
Organizations facing similar external pressures adopt similar norms and structures (DiMaggio & Powell, 1983).

Learning Concept Code
Concept Code encompasses student-centered rhetoric related to education and learning outcomes.

Mission and Vision Statements
A mission statement outlines the organization's purpose and serves as a roadmap for programs and initiatives; whereas, a vision statement outlines an aspirational direction of where the organization would like to be in a future state (Jonker & Meehan, 2014). For purposes of this study, mission statements will refer to both mission and vision statements given the use of one and/or the other by institutions measured in this research.

Mission Drift
When institutions expand their missions beyond their key purpose, they fall into mission drift (Hendrickson et al., 2013; Jonker & Meehan, 2014).

Mission-Driven
An organization is mission-driven when their initiatives align with their stated purposes (Jonker & Meehan, 2014).

Mission in Higher Education
Hendrickson et al. (2013) defined mission as "the purpose, philosophy, and educational aspirations of a college or university" (p. 9) which varies across institutional types. Non-profit universities typically refer to three components of mission dependent on institutional type: teaching, research, and service (Morphew & Hartley, 2006).

Research Concept Code
Concept Code encompasses discourse related to the generation of knowledge.

Service Concept Code
Concept Code encompasses public service provided by the institution to the community as defined locally, regionally, nationally, and/or internationally.

Strategic Plan
The strategic plan uses rhetoric provided by the institution of which typically references the mission and/or vision, values, initiatives, and resources allocated for a specified period of time (Fumasoli, 2018). For this study, the strategic plan examination focused on the specific initiatives proclaimed by the institution that more strongly illuminated the oft broader language of mission statements.

Strategy
Porter (1996) defined strategy as taking a differentiated position relative to the competition in which priorities are set and tradeoffs are required.

Teaching Concept Code
Concept Code encompasses institution- and educator-based educational themes such as programs offered and pedagogies (Scott, 2006).

Themes
Themes are more intangible and conceptual than categories that emerge upon review of the codes assigned to the data (Rossman & Rallis, 2003; Saldaña, 2016).

Traditional Mission Concept Code
Concept Code encompasses the institution's heritage and foundational institutional purpose.

List of Abbreviations

CIO…….Chief Innovation Officer

Georgia Tech……..Georgia Institute of Technology

GDP……Gross Domestic Product

H……..Hypothesis

Harvard……...Harvard University

HEIs…….……...……Higher Education Institutions

NUS…….…….National University of Singapore

OECD……..……Organisation for Economic Co-operation and Development

Oxford…….…….University of Oxford

RQ……....Research Question

Stanford…….…….Stanford University

Munich……..…….…….Technical University of Munich

The UT System…….…….The University of Texas System

Tokyo……University of Tokyo

Top 100……Reuters Ranking List of the World's Most Innovative Universities

UVA……...University of Virginia

"Creativity is the great driver of human achievement because human life is characterized by great flights of the imagination and by the development of [innovative] technologies, ideas, arts, practices and theories that are the fruit of human intelligence and creative thinking."

- Sir Ken Robinson

Introduction

In the most highly viewed TEDTalk ever, Sir Ken Robinson discussed creativity as the "gift of the human imagination" and the importance of "educat[ing] your whole being" (TEDTalk, 2013). Robinson also expressed the challenges educational institutions face as a result of dramatic changes in technology and demographics based on three characteristics needed to address this evolving landscape: diversity, dynamics, and distinction. Robinson provided a foundation for how higher education may innovatively adapt to increasing pressures in the twenty-first century while not drifting from their respective missions.

Innovation in higher education conjures a myriad of reactions. On the one hand, universities have been historically steeped in tradition by sheltering themselves from external influences in the quest for knowledge. However, in considering the broader definition of innovation, universities have introduced new approaches to higher education for centuries often driven by societal influences such as religious orientations to secular, liberal arts colleges to comprehensive universities, the addition of research influenced by the Germanic model, and massification and inclusion of student populations beyond privileged 18-22-year-olds (Thelin, 2019).

As institutions face challenges with balancing their traditional institutional missions and modern-day quests for relevance, they find themselves embracing innovation initiatives to thrive in the years to come. In the age of the fourth Industrial Revolution, racial inequities and unrest, and most recently, a global pandemic catapulting the most traditional, residential of campuses to adopt technology at lightning speed and face existential threats, the problem lies in how and when to innovate while balancing the heart and soul of the institution. In essence, it is important to examine how universities project, profess, or signal the missionary ideals of higher education while innovating within boundaries to avoid mission drift.

Research Overview

Through the close examination of mission statements for international institutions recognized for exemplar innovation, the following research questions (RQ) were explored in an effort to assist practitioners with missions and strategic plan initiatives:

> ***RQ 1: How do highly innovative universities communicate traditional missions and innovation in their mission statements?***
>
> ***RQ 2: To what extent do innovation strategies as stated in their strategic plans align with their mission statements?***

This research supports some of the mounting pressures higher education practitioners face in approaching innovation strategically while recognizing the mission-driven needs of the institution. A poorly constructed mission statement can present negative outcomes, inconsistencies with strategic plans and resource allocations, accreditation vulnerabilities, and student recruitment, admissions, and enrollment declines (Morphew & Hartley, 2006). Of note, governing issues may expand beyond accrediting bodies to state and national departments of

education, ministries of education, and international organizations such as the European Union, the United Nations, and the Organisation for Economic Co-operation and Development (OECD) (Özdem, 2011).

High research universities typically refer to three components of mission dependent on institutional type: teaching, research, and service in their respective communities (Harris, 2013; Morphew & Hartley, 2006; Thelin, 2019). Mission statements provide lenses to assess the rhetoric of traditional institutional missions and potential innovations in order to foster legitimacy and/or utilitarian purposes to guide strategic direction. A mission statement outlines the organization's purpose and serves as a roadmap for programs and initiatives; whereas a vision statement outlines an aspirational direction the organization would like to achieve in a future state (Jonker & Meehan, 2014). For purposes of this study, "mission statements" referred to both mission and vision statements given the use of one and/or the other by institutions measured in this research; both terms demonstrated the organizational goals, presently and in the future.

When considering theories most relevant to mission-related research, institutional theory was selected for grounding at a high level. Strong breadth of literature linked this theory to institutional rhetoric and its relevancy to assessing the debate over legitimizing tendencies, such as symbolism and signaling, versus more meaningful utilitarian prose (Ayers, 2015; Meyer & Rowan, 1977; Morphew & Hartley, 2006). The study operationalized innovation through a review of literature such as *Mission-Driven Innovation* (Hearn & Warshaw, 2015) and articles in *The Innovation Imperative* (*Chronicle*, 2019) to examine the alignment of strategic innovation portrayed in strategic plans against mission statements.

Upon a review of the literature, four hypotheses (H) were proclaimed as a means to synthesize data analytically and comparatively to assess normative and distinguishing institutional rhetoric.

> ***H1: Given the longevity of most institutions and their recognition as innovators within higher education, mission statements and strategic plans will comprise some similar and some differentiated elements.***
>
> ***H2: Some commonalities will exist within institutional types (e.g., public versus private, comprehensive versus technology/STEM-focused, by region).***
>
> ***H3: The older the university, the more likely heritage and traditional mission will be emphasized.***
>
> ***H4: The newer and technology-driven universities will emphasize innovation.***

High research international universities were chosen for the unit of analysis. In sourcing a data pool for examining the strategic use of innovation by universities, the Reuters (2018a) Top 100: The World's Most Innovative Universities (Top 100) was utilized. The use of rankings was carefully considered given the polarizing nature of utilizing these sources. The list was not intended to suggest these universities modeled the best and/or only way to illuminate innovation.

In fact, the study critically assessed the alignment of these highly recognized institutions which was deemed important given rankings are more prevalent than ever in practice as a tool to guide institutional strategic plans and decision-making. The Top 100 ranking (Reuters, 2018a) allowed for a jumping off place, a surveying of sorts, for universities recognized for innovation around the world from a range of geographies, historical origins, and economic prowess. Higher education futurist, Bryan Alexander (2020), explicated the role historical, geopolitical, and financial vantages play in rethinking higher education of which parallels the scope of this interdisciplinary contextual overview as a component of the data analysis.

So, why examine from an international vantage? First, mobility and technology have made international education increasingly more prevalent in the higher education sphere (Landorf et al., 2018). Additionally, university missions often include solving broad societal challenges. Also, global citizenship and problem-solving are prevalent at the institutional and individual levels, even within their own backyards, such as with the presence of international students, migration, and global collaborations.

The research design was informed by a literature review, theoretical grounding, and a two-phased conceptual framework through an interdisciplinary lens of higher education (unit of analysis and focus of study), sociology (institutional theory), and business (innovation, strategy, business plans). To begin, a brief international historical literature review included high research university originations and missions within historical eras. Next, institutional theory was explicated as a means to ground the study in assessing the legitimizing, differentiating, and utilitarian activities associated with mission statements and strategic innovation. Given the oft perceived nebulous nature of missions, strategies, and innovation, these terms were defined based on the literature. The conceptual framework displayed an overview of the research to be conducted. Two phases were examined. Before moving into each phase, an interdisciplinary contextual overview was provided to examine geographic, historical, and financial factors on a macro basis. For Phase I, a content review of mission statements was examined of the Top 100 universities as publicly available. Concept and In Vivo Coding was conducted using ATLAS.ti software. In Phase II, a content review examined alignment of mission statements and strategic plans to assess mission-driven or mission drift evidence for select universities identified.

This research fills several gaps in the literature related to international higher education studies, the intersections of traditional university missions with innovation, and the critical use of ranking systems. It provides a vantage on interdisciplinary uses for ATLAS.ti software beyond the robust coding features, such as geospatial mapping. Given the macro approach to this study, more specific recommendations were made for practitioners within institutions with responsibility for mission statements and strategic initiatives. While innovation is often associated with technology first and foremost, most practitioners are faced with the broader definition of new ways to manage their work of which this research encourages frameworks to guide them. Additionally, the broad nature of this research provides future studies to begin to unpack the discourse and illuminate the intent such as by conducting interviews with innovation proponents such as chief innovation officers (CIOs) and hesitant faculty. Possible research topics could include the examination of institutional culture, innovative ecosystems, and from student- and employee-centered perspectives.

Researcher Positionality

It is important to acknowledge the researcher positionality given experience in higher education, interdisciplinary studies, innovation, and corporate management and how this work could have been impacted. This professional experience could result in analyzing from an insider's perspective if not mindful. The international assessment was examined through the lens from the United States. The researcher's graduate education includes an interdisciplinary, Master of Liberal Arts degree as well as post-master's international study in areas such as anthropology (globalization and development, global cultures, humanities), business (leadership, international entrepreneurship), and engineering (innovation and design). These wide-ranging academic interests informed the research design of this broader, interdisciplinary, macro-level study. To mitigate potential bias, data was triangulated through secondary sources including literature outside of the United States and by obtaining advisor and peer reviews.

Literature Review

The literature review began with a historical examination of international higher education within broad eras, expanding missions, and incorporated institutional founding dates that corresponded with each of the eras from the eleventh to twentieth centuries. Then, an overview was provided of institutional theory, of which the study was grounded, which discussed the legitimizing, isomorphic, and, at times, utilitarian behaviors of organizations. The next sections examined the literature on missions of higher education, the strategic use of innovation, and mission-driven and mission drift tendencies. The review concluded with a conceptualization of research in Phases I and II which was informed by research questions and the literature.

History of International Higher Education

Excerpts from the following section were recently published by the European Conference on Education under the heading "Interdisciplinarity and the Top 100" (Montgomery, 2020b).

The international universities most recognized for innovation spanned distinctive eras and were located from around the world. In fact, the majority of the most innovative universities were established over 200 years ago with the oldest university on the list, Oxford, over 900 years old (Reuters, 2018a). As Thelin (2019) proclaimed, the oldest American institutions have withstood the tests of time. For instance, Harvard is the oldest "corporation" in the United States, founded in 1636. Historically, universities typically referred to three components of mission dependent on institutional type: teaching, research, and service in their respective communities (Harris, 2013; Morphew & Hartley, 2006; Thelin, 2019). This literature review encompassed the history of higher education from American and international vantages. Key eras were highlighted with examples of founding dates for the institutions on the Top 100 list highlighted within each section.

Medieval Higher Education Origins in Europe

Higher education originated in ancient Rome and Greece, the "intellectual capital of the world" (Guruz, 2008, p. 117), home to Plato and Aristotle in the 300 BCs with pedagogies like the Socratic teaching method still in practice today. Higher education institutions first emerged in Europe with three currently recognized as innovative leaders in higher education on the Top 100 list (Reuters, 2018a): University of Oxford (1096) and University of Cambridge (1209) both in the United Kingdom (U.K.), and KU Leuven in Belgium (1425). (Note: university founding dates have been denoted in parentheses.) Age-old universities like these weathered centuries of societal changes, balancing historical missions with contemporary challenges up through the twenty-first century.

United States Emergence in the Colonial Era

The oldest U.S. postsecondary institutions originated in the Colonial period before the American Revolution (Thelin, 2019) and included four institutions on the Top 100 list (Reuters, 2018a): Harvard (1636), Yale University (1701), University of Pennsylvania (1740), and

Columbia University (1754). The Colonial colleges had maintained exclusivity with low enrollment and were renowned for strong legacies, traditions, and prestige which continues to this day (Thelin, 2019). These colleges built on the foundations of Oxford and Cambridge by combining academic and young adult living. However, they embraced new ideas, or innovations, by combining instruction with the business of issuing degrees and certifications, a practice treated separately across the Atlantic. Additionally, Oxford students were more cavalier about their studies unlike Harvard in which academics and religion were taken more seriously (Thelin, 2019). Henderson (1970) described additional features of the English model to include a curricular emphasis on classics and theory, faculty teaching to students as an authority figure, and a centralized ministry of education unlike the decentralization found within the United States.

Higher Education in the U.S. After the American Revolution

Thelin (2019) named the period following the American Revolution the "new national period" (p. 41). What resulted was a period of innovation and consumerism to adapt to the nation's emerging economy, expanding territories, and demographics. Thelin (2019) discussed issues of consumer protectionism given the rise of diploma mills without strong government regulation. At this time, state universities began to emerge along with private universities with many on the Top 100 list (Reuters, 2018a), such as the University of North Carolina, Chapel Hill (1789), University of Virginia (1819), Duke University (1838), Tufts University (1852), The Ohio State University (1870), and The University of Texas System (1883).

Introduction of the Germanic Model

Also, of note, the first German university entered the Top 100 list (Reuters, 2018a): University of Erlangen, Nuremberg, Germany founded in 1743. Institutions that employ the Germanic model train students in strong academic programs focused on technical, utilitarian, and specialized curricula at the undergraduate, master's and doctoral levels (Guruz, 2008; Henderson, 1970, Thelin, 2019). This model has influenced many universities around the world. For instance, European technology institutes on the Top 100 (Reuters, 2018a) emerged in Switzerland such as Swiss Federal Institute of Technology Lausanne (EPFL, 1853) and the Swiss Federal Institute of Technology Zurich (ETHZ, 1855). These more dynamic, technologically-driven universities (Geiger, 2016; Thelin, 2019), like Johns Hopkins University (1876) and later followed by Georgia Institute of Technology (1885) in the U.S., surfaced in the late 1800s as a result of the Industrial Revolution and an interest to prepare students to "play constructive roles in a democratic society" (Labaree, 1997, p. 43). The University of Tokyo (1877) was also influenced by the German model of higher education (Henderson, 1970).

Proliferation of New Colleges Worldwide in the 1800s

The most significant emergence of the Top 100 universities (Reuters, 2018a) occurred in the nineteenth century as a result of geographical expansion and the creation of land-grant universities in the United States (Geiger, 2016; Thelin, 2019); emerging nation-states in Europe and Asia (Guruz, 2008); and, the adoption of technology-driven universities inspired by

Germany and France (Henderson, 1970). In fact, 53 of the Top 100 were founded in the 1800s (Reuters, 2018a).

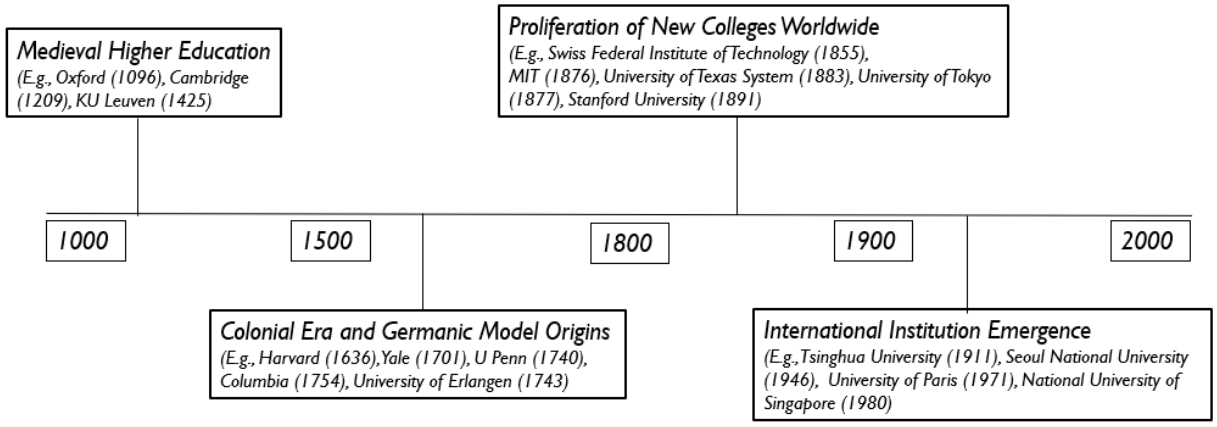
International Institutions Emerging in the Twentieth Century

The twentieth century was characterized by the move towards accessibility in higher education with major events like World War I and World War II creating more university differentiation in the United States as a result of the GI Bill, privatization of education and varied governmental funding models, and diversified revenue streams in the current era (Geiger, 2016; Thelin, 2019). In regard to the Top 100 (Reuters, 2018a), many of the newest universities on the list came from Asia, such as Kyushu University, Japan (1903), Tohoku University, Japan (1907), Tsinghua University, China (1911), Osaka University, Japan (1931), and Seoul National University (1946). The Top 100 (Reuters, 2018a) also included the National University of Singapore (NUS), one of the newest universities founded in 1980 and the most recently established nation (1965).

Figure 1 provides a visual portrayal summarizing the historical eras of higher education internationally and university examples founded during each timeframe.

Figure 1

International Institutions Recognized for Innovation (Reuters, 2018a) – Historical Vantage by Era



Institutional Theory

Excerpts from the following section were recently published by the Asian Conference on Education under the heading “Unpacking mission statements” (Montgomery, 2021).

This study was grounded in institutional theory given the breadth of literature linking this theory (Ayers, 2015; Meyer & Rowan, 1977; Morphew & Hartley, 2006) and its relevancy to assessing the debate over legitimizing tendencies versus meaningful utility of mission statements. Institutional theory focuses on legitimacy and norms of which provides an insightful lens into the longevity of this institutional phenomenon. The theory supports the core legitimizing behaviors and structures steeped in traditional missions centered on learning,

research, and service. Symbolic ivory towers instruct young adults as they come of age and ready themselves for their professional adult lives.

Origins and Overview

Institutional theory examines organizations and their efforts to establish legitimacy and sensemaking. For instance, what are the characteristics of an entity that signal the institutional type? In essence, people must make sense out of how an organization is constructed to associate and legitimate the institution. The institutional mission statement can serve this purpose – rhetoric that states the institution's purpose as a signal to its various constituencies. While the origins of institutional theory can be traced back to the late nineteenth century, the theory lay dormant until the first half of the twentieth century (Author Unknown, 2004). Scott (1987) discussed the origins of institutional theory in the field of sociology through the chronological identification of several approaches. The first institutional theory research he featured was conducted by Selznick (1957) and his students with an emphasis on value. Selznick (1957) stressed the historical nature of organizations and the role value played in long-term sustainability. The next phase of research on institutional theory focused on institutions and their need to construct social realities (Berger & Luckman, 1967). In the third wave of historical theory research, Meyer and Rowan (1977) applied this philosophical, phenomenological theory to their work by emphasizing the shared elements created within organizations. In fact, Meyer and Rowan (1977) also advanced institutional theory research to legitimize organizational efforts and provide the foundation for this analysis:

> Institutional rules function as myths which organizations incorporate, gaining legitimacy, resources, stability, and enhanced survival prospects. Organizations whose structures become isomorphic with the myths of the institutional environment… decrease internal coordination in order to maintain legitimacy. (p. 340)

Morphew and Huisman (2002) discussed the nebulous nature of institutional organizations and the role external forces play in driving activities. Conversely, internal structures were argued to promote legitimacy (Meyer & Rowan, 1977; Scott, 1987). Given the broad nature of this theory, a multitude of disciplines have applied this theoretical lens in studying various organizational types. In addition to research within its sociological origins and the literature within higher education, researchers have applied the theory within many disciplines such as political science, psychology, anthropology, history, and economics (e.g., Author Unknown, 2004; Peters, 2019).

Isomorphism

One of the distinguishing components of institutional theory is the concept of isomorphism and its role in normative activity. DiMaggio and Powell (1983) defined isomorphism as when organizations facing similar external pressures adopt similar norms and structures, referring to organizations restricted to activities within an "iron cage" in that they are bound to expectations that legitimize their particular institutional type. They argued that institutions face isomorphism in three main ways: coercive, mimetic, and normative. Coercive isomorphism results from mandates and other pressures such as governmental or regional

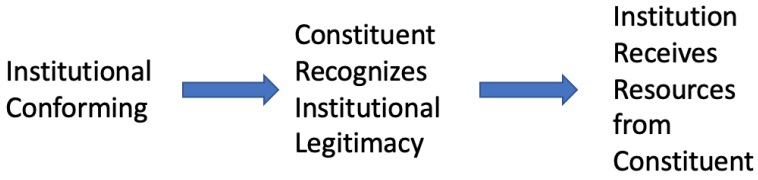
accreditation regulations. Mimetic behaviors are commonly found when institutions attempt to emulate prestigious institutions such as those highly ranked. Normative isomorphism results when universities adopt revered institutional practices and approaches.

Outcomes and Resources Associated with Institutional Theory

According to institutional theory, when an institution conforms to practices expected of its industry type, constituencies are able to make sense of, and confirm, its legitimacy. In turn, the institution reaps the benefits of resources attained by that particular constituent (Harris, 2013; Meyer et al., 1981). For instance, a traditional university is expected to have bricks and mortar buildings, students, and faculty. Comprehensive universities have many extracurricular organizations such as Greek life and athletics. However, in more recent decades these channels have blurred. Students may commute, or even take classes online. There has been growth in the non-traditional student population in which the full range of on-campus services and extra-curricular experiences are irrelevant. When universities choose not to follow expected norms, they become illegitimate and risk the ability to secure resources; thus, institutions may find themselves constricted from deviating against normative practices (Harris, 2013). This phenomenon can be depicted in a three-fold framework in which institutional conformity leads to legitimacy which results in the receipt of resources (see Figure 2).

Figure 2

Institutional Conforming, Legitimacy, and Resource Impact Conceptualization



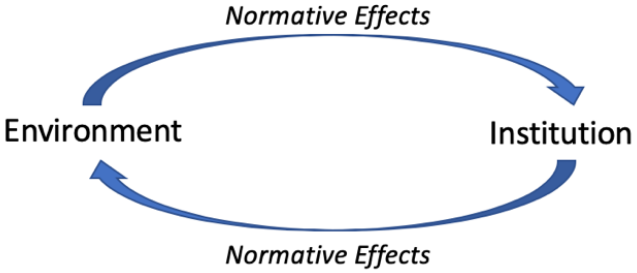
This framework can be illuminated in terms of institutional rhetoric of missions and strategic plans. For example, traditional undergraduate students expect the norms of an on-campus learning experience with esteemed faculty, extracurricular experiences, and a curriculum leading to landing a job. Students could be persuaded of institutional legitimacy if institutions address their expectations such as with mission statements. This would translate to institutional resources from the student in the form of tuition, fees, and payment for other items such as books and athletic events. In another instance, accrediting agencies and other governance bodies such as international ministries of education may expect institutions to provide mission statements to guide organizational effectiveness When institutions comply, they receive accreditation and other legitimizing recognition that enables the entity to operate and generate various revenue streams (e.g., tuition, grants, and financial aid).

Neo-Institutional Theory

A newer application of institutional theory was introduced by Ruef and Scott (1998) called “neo-institutional theory.” This theory suggests that not only the environment drives normative behaviors with the institution, but that the institution may also in turn drive normative effects within the environment (Harris, 2013) (see Figure 3). Examples of this taking place in higher education occur when the institution provides a leadership opportunity or best practice

that influences the external environment such as a biomedical invention originating in a university laboratory that would impact industry. This theory extends beyond the scope of this particular study yet lends itself to future research opportunities.

Figure 3
Neo-Institutional Theory Conceptualization



Missions and Mission Statements

Excerpts from the following section were recently published by the Asian Conference on Education under the heading "Unpacking mission statements" (Montgomery, 2021).

Scott (2006) examined the transformation of university missions historically from the medieval European universities through the postmodern age. He defined a mission broadly as a purpose. Hendrickson et al. (2013) defined mission as "the purpose, philosophy, and educational aspirations of a college or university" (p. 9) which vary across institutional types.

Universities typically referred to three components of mission dependent on institutional type: teaching, research, and service to their respective communities (Harris, 2013; Morphew & Hartley, 2006; Thelin, 2019). Teaching connotated institution- and educator-based educational themes such as programs offered and pedagogies (Scott, 2006). Learning embodied the student-centered aspects related to education and learning outcomes. Service was provided by the institution to the community as defined locally, regionally, nationally, and/or internationally. Another component related to the traditional mission acknowledged the institution's heritage and foundational institutional purpose. The inclusion of research was emphasized in high research universities and often linked to innovation, a major component of this study. Community colleges, on the other end of the spectrum of higher education institution (HEI) types, focus on teaching and service (Ayers, 2015). The service component of mission has expanded with the massification, globalization, and knowledge economy in the twentieth century (Ariño Villarroya, 2017). These factors have led to debates over the role of HEIs as public versus private goods (Labaree, 1997).

Mission statements represent a written account of the institutional purpose. A mission statement serves as a roadmap for programs and initiatives; whereas a vision statement outlines an aspirational direction of where the organization would like to be in a future state (Jonker & Meehan, 2014). For purposes of this study, mission statements referred to both mission and vision statements given the use of one and/or the other by institutions measured in this research; both terms demonstrate the organizational goals, presently and in the future. Scott (2006) found

the United States to be the first country to publish their mission statements in university catalogs in the 1930s with other countries such as England and Canada following suit later in the twentieth century as a means to provide more accountability with the public.

Critics argued the lofty, ubiquitous, and meaningless rhetoric of mission statements as a legitimizing tool (Ayers, 2015; Morphew & Hartley, 2006). Proponents cited the importance of well-crafted mission statements to serve as compasses to chart the priorities of institutions (Hendrickson et al., 2013; Jonker & Meehan, 2014). Effective mission statements have been described as original, authentic, easy to remember, and validated by research (Özdem, 2011). The notion of distinctiveness was further explicated in that institutions should embrace their societal purpose as predicated by institutional type (e.g., liberal arts college, high research university, two-year community college), all of which will naturally differ (Dickeson, 2010; Ellis & Miller, 2014; Gardener, 1961). A poorly constructed mission statement can present three problematic outcomes (Morphew & Hartley, 2006). First, ineffective mission statements negatively impact strategic plans, resource allocations, and daily operations. To combat this potential issue, administrators would benefit from a strong understanding of the traditions and heritage imperative to maintain, while strategically employing innovation as a means to assist with strategic planning and daily decision-making. Kezar (2018) reinforced this notion by explicating the role of mission to act as a "blueprint and compass" (p. 137) for employees to prioritize initiatives. She also posited that while institutional leaders established university mission statements, that bottom-up leaders can take agency to create aligned visions and plans for their respective initiatives. Second, missions that do not promote the ideals and standards of universities place accreditation in jeopardy. With accreditation agencies requiring the declaration of and adherence to distinctive missions, the absence of strong statements translates to severe repercussions beyond the legitimizing effects into many operational areas internally and externally. Finally, poorly crafted mission statements could hurt recruitment and admissions efforts given their sourcing by prospective students and their families (Morphew & Hartley, 2006). Of note, Özdem (2011) explicated the impact of regional and international governing bodies (e.g., ministries of education and international organizations such as the European Union, the United Nations, and the OECD). These entities could be likened to state and national departments of higher education in the United States (Kelchen, 2018).

Internationally speaking, Bayrak (2020) conducted a content analysis of mission statements for the top ranked institutions from the *Times Higher Education* ranking for five global regions for comparative purposes via the extracting of key words. While the descriptors were more general in nature, differences appeared – U.S.: learn, idea, and science; Asia: cultivate, community, and knowledge; and, Europe: gain, knowledge, and world. Also, of note, British and Jamaican researchers, Ellis and Miller (2014), conducted a content analysis on mission statements for seven Jamaican universities which provided an example of how this research methodology could be relevant beyond high research universities in understanding how HEIs signal institutional priorities.

Strategic Use of Innovation

In his seminal work on innovation in higher education, Henderson (1970) discussed the heritage of innovation in higher education such as the establishment of the land-grant system,

professional schools, and community colleges. He posited that innovation has been built on the blending of society and individual needs of which are not static. Henderson's position aligned with a definition of innovation by Poole and Van de Ven (2004) in which they described innovation as "the wellspring of social and economic progress, and both a product and facilitator of the free exchange of ideas" (p. xi).

These critical perspectives explicate how institutions may strategically define innovation to serve their distinct institutional purposes, or missions. Definitions for this study illuminated "Innovation Within Mission" and "Innovation Beyond Mission" based on Poole and Van de Ven's (2004) broad definition of innovation. In addition, the definition represented the traditional components of mission (Harris, 2013; Morphew & Hartley, 2006; Thelin, 2019). For instance, Innovation Within Mission included new ideas, approaches, and actions related to teaching, research, and service. Conversely, Innovation Beyond Mission did not relate to teaching, research, and service.

Operationalizing innovation in higher education proves a challenging feat by nature of the broad and polarizing nature of the term. When considering the broader definition of innovation, universities have innovated within higher education for centuries often driven by societal influences such as shifts from religious orientations to secular, liberal arts colleges to comprehensive universities, the addition of research influenced by the Germanic model, and massification and inclusion of student populations beyond privileged 18-22-year-olds (Thelin, 2019). Hearn and Warshaw (2015) provided more recent and specific examples of the operationalization of innovation in which they examined mission-driven innovation at independent colleges in the United States to assess adaptive measures and whether they aligned with or drifted from institutional missions. Such operationalization examples included outsourcing operations, new/restructured academic programs, study abroad, fundraising, facilities, external partnerships, government contracts, incubators, consulting or think tank services, etc.

Additional examples of innovation and operationalization were considered such as interdisciplinarity and partnerships. Interdisciplinarity has been strongly linked to innovative change and may impact faculty and programs significantly (Crow & Dabars, 2015; Harris, 2010). For instance, Harris (2010) discussed multiple intersections of interdisciplinarity and collaboration of which universities may deem as central goals for top-tier, knowledge-producing research universities. Additionally, university leaders played an important role in emphasizing innovation and interdisciplinarity, often evidenced in strategic planning documents. Crow and Dabars (2015) discussed the importance of expanding disciplinary approaches to best meet their missions and goals to enable "direction and purpose to the artistic and humanistic insight, social scientific understanding, scientific discoveries, and technological innovations" and to "negotiate the encroaching complexity emerging in the twenty-first century" (p. 13).

Collaboration with university and external partners expands the concept of interdisciplinarity to extend resources and form external partnerships. For example, Harris (2010) linked collaborative behavior and innovation within an institution, positing the economic benefits of collaboration based on a model designed by Kezar and Lester (2009) on intra-organizational collaboration. Brint et al. (2016) explored partnerships with other colleges and

organizations to drive innovative change beyond institutional walls. Crow and Dabars (2015) linked external partnerships to innovation by providing examples such as "Stanford University and Silicon Valley and between Harvard University and MIT and Route 128 in Boston" to foster "social and economic progress" (p. 11). Of note, Stanford, MIT, and Harvard comprised the top three schools respectively on the Top 100 ranking (Reuters, 2018a).

Innovation has been debated within HEIs as evidenced in a special edition, *The Innovation Imperative*, published by *The Chronicle of Higher Education* (2019) in which innovation was investigated as a mechanism for "high hopes or broken promises" (p. 59). For example, the former President of the University of Connecticut touted change in academe. Additionally, Blumenstyk (2019) posited that "innovation has become an animating force since the 2000s" in higher education yet "most colleges are desperately in need of reinvention but too mired in the past" (p. 5). However, one commentator criticized the need for innovation by arguing that innovation should be treated more generally as a mindset instead of a business practice as not all people have the aptitude or interest to approach their professional work innovatively (Leary, 2018). Additionally, Wisnioski and Vinsel (2019) claimed universities paint the façade of innovation when, in actuality, they pursue short-term trends versus more long-term strategies and practices.

Also for consideration, universities most recognized for innovation are not immune from failures. For instance, The University of Texas System (The UT System) invested $75 million sourced from taxpayer funds to create an Institute for Transformation that failed to generate even a fraction of the revenue expended. The postmortem criticized "ambition, bold words, and loose money" (Lederman, 2018, para. 7) for this initiative and explicated the need for a strong business plan and constituency buy-in. Stakeholder support should not only have included shared governance at the leadership level but also recognize the importance of involvement from a bottom-up perspective. One could argue The UT System was missing a strategic and business-minded approach to a sizable innovation investment.

Certo and Certo (2015) emphasized the importance of a strong mission statement to guide the strategic management process. The concept of strategy presents an interesting challenge given higher education institutions have been labeled "organized anarchies" (Cohen & March, 1974, p. 2). This lack of structure translates to ambiguous goals and perceived homogeneity (Hendrickson et al., 2013). This nebulousness contradicts the nature of strategy defined by Porter (1996) as taking an intentional, differentiated position relative to the competition in which priorities are set and tradeoffs are required, not the free-for-all insinuated by Cohen and March (1974).

In reality, the very nature of university missions (teaching, research, and service) provides less opportunity for broad distinctions versus the competition when comparing against industry. Comparatively, corporations emphasize competitive strategies and their ability to provide differentiation and trade-offs to increase profitability and shareholder value. For instance, Porter (1996) shared an industry example of IKEA, the distinctive Swedish retailer, and its strategic differentiation and trade-offs. The low-cost, inventory-ready, stylish furniture retailer established a competitive position in the marketplace. This more extreme example may prove difficult to replicate in higher education; however, it illuminates how differentiation may be

approached to guard against more isomorphic, one-size-fits-all approaches. In fact, while the broad purposes of instruction and service establish normative behaviors for HEIs, distinctiveness more specifically would garner differences such as high research institutions, societal purposes, geographic scope, institutional type, strategic plans, and resource allocations (Dickeson, 2010; Ellis & Miller, 2014; Gardener, 1961; Harris, 2013).

Innovation strategies can be inspired by private industry even if changes appear less substantive. Walker and Madsen (2016) defined competitive strategy for a corporation as the firm's ability to gain customers and generate strong profits. While non-profit universities do not secure profits, they place great emphasis on generating strong revenues in an effort to invest within their institutions to attract high quality students and faculty (forms of customers) as financial sustainability and existentiality remain twenty-first century pressures within academia. For instance, despite the strong reputation of Oxford, they emphasized the importance of securing strong revenue streams for financial sustainability for years to come in their 2018 financial plan (Oxford, 2018).

The strategic plan rhetoric provided by the institution typically references the mission and/or vision, values, initiatives, and resources allocated for a specified period of time (Fumasoli, 2018). For this study, the strategic plan examination focused on specific initiatives proclaimed by the institution that more strongly illuminated the oft broader language of mission statements. With the rise of innovation, HEIs have begun to hire chief innovation officers (CIOs). The inaugural CIO of Georgia State University in the U.S. declared that "truly pioneering institutions make innovation a priority throughout the organization" (Ventimiglia, 2019, para. 6). Additionally, the importance of innovation strategy informed by external partners was reinforced in the EU in which Newmark (2019) posited that European universities should approach innovation by collaborating with the corporate sector. He expounded by explicating the need to span "disciplinary and institutional boundaries" (para. 3) as opposed to within closed systems to solve some of the world's most challenging problems.

Alignment: Mission-Driven or Mission Drift

Jonker and Meehan (2014) recounted that "an old Sicilian proverb says that a fish rots from its head. A nonprofit organization, similarly, rots from its mission" (para. 1). They discussed the importance of well-crafted statements that explicate clarity, focus, and stakeholder involvement. They also posited the nature of nonprofit organizations to embody mission-drift tendencies as a result of overly broad, misunderstood missions and extend their scopes beyond competencies.

Mission drift assessments illuminated institutional purposes with misaligned actions in which resources were attributed to driving changing business models (Foss & Saebi, 2017; Klein et al., 2017; Weerawardena et al., 2019). Hendrickson et al. (2013) explicated external, environmental forces driving the need for "boundary-spanning" (p. 12) in which missions provided a compass for effective adaptations or innovations. When institutions expand their missions beyond their key purpose, they fall into mission drift or creep (Hendrickson et al., 2013; Jonker & Meehan, 2014). Potential mission drift often happens as a result of societal and financial pressures in which innovative and adaptive pressures cause universities to veer from

their distinctive institutional missions. Ariño Villarroya (2017) posited that the service component has expanded as a result of the knowledge economy and the emergence of the entrepreneurial university in which external funding has resulted from knowledge transfer through forms such as institutes and technology parks. Lester (2007) explicated that these externally-based developments create friction based on the perceived negative impact of losing autonomy and academic freedom.

Perceived mission drift may also be subject to institutional types and stature aspirations such as mimicking aspirational universities yet not positioned and/or resourced to do. Additionally, the shift from HEIs as public to private goods and the intertwining of industries and universities has led to heightened debates as with *The Great Mistake: How We Wrecked Public Universities and How We Can Fix Them* by Newfield (2017) versus perspectives such as *Designing the New American University* (Crows & Dabars, 2015).

Additionally, depending on how innovation is defined, one could argue that not all mission drift is negative. In fact, drift occurs through the natural evolution of missions since the medieval ages to serve expanding societal needs. From a historical review of the broader interpretation of innovation, universities have expanded or drifted from their original missions to expand the demographics of the students they serve, the educational programming they offer, and the addition of research influenced by the Germanic model (Thelin, 2019). From an organizational effectiveness perspective, Dickeson (2010) argued that mission statements should be constantly re-examined and adjusted when appropriate.

Conceptual Framework

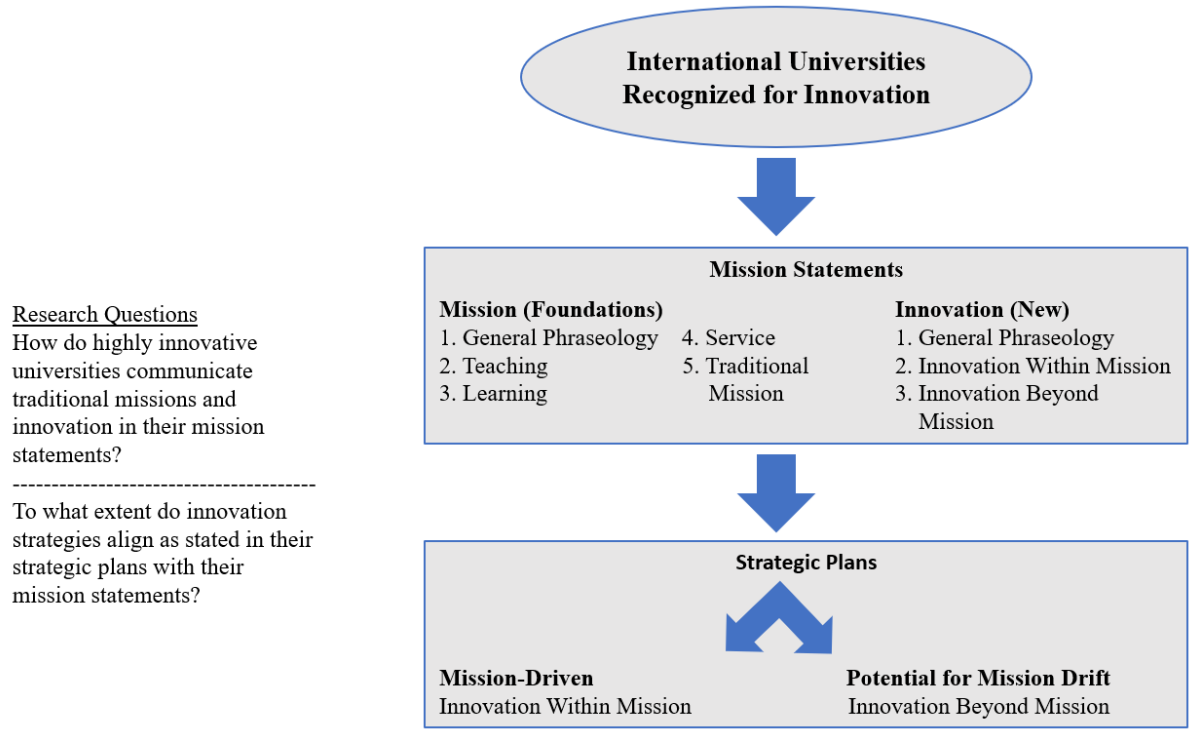
The conceptual framework outlined the two-phased research design to explore the rhetoric used to communicate the Traditional Mission and Innovation Within Mission statements and assess alignment of missions and the strategic use of innovation. The conceptual framework illuminated the exploration of publicly available mission statements for the Top 100 (Reuters, 2018a) in order to investigate the first research question of how highly innovative universities recognized for innovation communicate traditional missions and innovation in their mission statements. The ensuing content analysis examined publicly available mission statements to identify rhetoric signaling mission. Mission was based on Morphew and Hartley (2006) identifying the trifecta of instruction, research, and service with adaptations for teaching (institution- and instructor-centered), learning (student-centered to complement teaching), and heritage symbolizing institutional traditions. Innovation rhetoric was informed by literature such as from Hearn and Warshaw (2015) and the *Chronicle* (2019) based on operationalization discourse examples broadly and within higher education. Definitions explicated for this study in terms of "Innovation Within Mission" and "Innovation Beyond Mission" were based on Poole and Van de Ven's (2004) broad definition of innovation; mission was then coupled with innovation based on the three main components – education, research, and service (Harris, 2013; Morphew & Hartley, 2006; Thelin, 2019).

The second research question examined the innovation strategies alignment as stated in HEI strategic plans relative to their mission statements. A second content analysis sourced publicly available strategic plans. Rhetoric for Innovation Within Mission was classified as

Mission-Driven Innovation, conversely, Innovation Beyond Mission was deemed as Potential for Mission Drift. The conceptual map featured in Figure 4 provided the framework to depict the strategic use of innovation and mission alignment (or lack thereof) with select institutions in this study.

Figure 4

Conceptual Map: Mission and Strategic Plan Alignment: Mission-Driven or Mission Drift



Research Methods

Excerpts from the following section were recently published by the Asian Conference on Education under the heading "Unpacking mission statements" (Montgomery, 2021); the European Conference on Education under the heading "Interdisciplinarity and the Top 100" (Montgomery, 2020b); and in the *Journal of Management Science and Business Intelligence* article titled "International financial comparative analysis" (Montgomery, 2020a).

This research study examined the strategic use of innovation and alignment with institutional mission of high research universities internationally. The methodological design employed exploratory research comprised of two phases, focused primarily on qualitative techniques with some quantitative data pulled for descriptive purposes. Merriam and Tisdell (2016) explicated this research approach to be led by qualitative research given little is known about the question and then followed quantitatively to establish analytical context. The nature of combining words and numbers painted a stronger, more holistic view and interpretation of the data (Miles et al., 2014). This study utilized a content analysis by sourcing words from mission statements and strategic plans in addition to numbers resulting from the elements within mission statements to draw comparisons across institutions. Merriam and Tisdell (2016) described the content analysis process as identifying the artifacts, verifying the source, and considering authenticity. For purposes of this study, mission statements included vision statements as they both demonstrated the organizational goals, presently and in the future.

Before quantifying the data, an interdisciplinary contextual overview was provided through an interdisciplinary lens geographically, historically, and financially. Holley (2009) posited the role interdisciplinary studies play in providing the opportunity to study complex topics from multiple perspectives. The multi-faceted nature of innovation and its role in a global society benefited from a broader exploration to provide greater perspective – for this study, exploring the landscape of the Top 100 from geographic, historical, and financial perspectives.

Phase I allowed for more breadth (Holley & Harris, 2019) by examining one artifact, mission statements, across the Top 100 innovative universities (Reuters, 2018a) to understand how universities recognized for innovation communicate their missions and innovation in their mission statements. In Phase I, mission statements were examined to explore traditional missions and innovation through qualitative research. Qualitative methods enabled a more in-depth understanding of themes emerging from the mission statements.

Prior to delving into qualitatively analyzing the codes for emerging themes, the data was "quantitized" (Saldaña, 2016) through descriptive statistics to report frequencies of word counts overall and by continent along with frequencies of Mission- and Innovation-related Concept Codes. Saldaña (2016) coined the term, "quantitizing" (p. 27), to explicate the process researchers pursue to more deeply explore qualitative data as a means of sensemaking.

Descriptive statistics reported frequencies of word counts overall and by continent, as well as for Mission- and Innovation-related Concept Codes. By quantifying the data, benchmarks would examine central tendencies (isomorphism) versus variances (distinctive behaviors) through the lens of institutional theory. Coldarci and Cobb (2014) attributed descriptive statistics

as the ability to "organize and summarize data so that they are more readily comprehended" (p. 2). For instance, central tendencies of mission statement components were examined to describe the legitimizing effects of the mission statements along with variability that would illuminate strategic differentiation (Coldarci & Cobb, 2014).

Of note, Ayers (2015) used quantitative and qualitative research design methods which influenced this study. This study focused primarily on qualitative methods and quantitative secondarily as opposed to Ayers approaching in the reverse. This could be largely attributed to the large database (n=1009) Ayers (2015) accessed for mission statement review as opposed to the smaller set of this study (n=100). Ayers (2015) stressed the examination of common and rare phraseology of which was adopted for this study. This mechanism supported the legitimizing and utilitarian evidence of institutional theory which would be assessed through central tendencies and variability.

Once the mission statements had been fully examined, the research moved to Phase II with an in-depth content analysis of ten universities. This textual examination illuminated the portrayal of innovation within strategic plans to assess alignment with institutional missions. Essentially, was the discourse related to the strategic use of innovation mission-driven or mission drift?

For the unit of analysis, universities recognized on the Top 100 innovative universities listing (Reuters, 2018a) were selected. Singleton and Straits (2010) described the unit of analysis as the elements or cases to be examined and generally identified with ease. The access of data aligned with the purpose of this research and served as a relevant aggregation of data to compare and contrast institutions in consideration of longevity, institutional type, continental region, and innovative approaches.

Interdisciplinary Contextual Overview: Geographic, Historical, Financial

Before moving into each phase, a broader contextual review was examined from geographic, historical, and financial perspectives. Interdisciplinary studies fostered the opportunity to study complex topics from multiple vantages (Holley, 2009). The increasing emphasis on innovation in an increasingly complex global society is one such topic that benefits from a deeper exploration beyond one discipline – in this case, by examining differing perspectives geographically, historically, and financially. The analysis began with an overview geographically to provide incidence of the institutions at continent, country, and institutional levels. To create this map, all institutions were loaded into ATLAS.ti (2020) CAQDAS software (Contreros, 2017). The map was then used to depict macro data related to historical and financial factors. Additionally, geospatial analysis illuminated regional mapping of this qualitative and quantitative data (Yoon & Lubienski, 2018). For instance, the Top 100 (Reuters, 2018a) countries were plotted on a geospatial map generated by ATLAS.ti.

Phase I: Content/Archival Review of Mission Statements

In Phase I, a content analysis of archival data was conducted by examining institutional mission statements for the Top 100 innovative universities identified by Reuters (2018a) through publicly accessible documents sourced from their websites. Tables 1 and 2 list the Top 100

ranking to include ranking, country of origin, year the institution was established, and the total number of students as reported by Reuters (2018a).

Table 1

Reuters 2018 Most Innovative Universities Adaptation, 1-50

Ranking	University	Country	Year Established	Students
1	Stanford University	USA	1891	17,534
2	Massachusetts Institute of Technology (MIT)	USA	1861	11,466
3	Harvard University	USA	1636	31,120
4	University of Pennsylvania	USA	1740	25,367
5	University of Washington	USA	1861	56,809
6	The University of Texas System	USA	1883	235,000
7	KU Leuven	Belgium	1425	56,351
8	Imperial College London	United Kingdom	2007 (1907)	15,317
9	University of North Carolina Chapel Hill	USA	1776	29,911
10	Vanderbilt University	USA	1873	12,592
11	Korea Advanced Institute of Science & Technology (KAIST)	South Korea	1971	9,463
12	Swiss Federal lnstitute of Technology Lausanne (EPFL)	Switzerland	1969 (1853)	9,750
13	Pohang University of Science & Technology (POSTECH)	South Korea	1986	3,581
14	University of California System	USA	1869	238,700
15	University of Southern California	USA	1880	45,687
16	Cornell University	USA	1865	23,016
17	Duke University	USA	1838	16,130
18	University of Cambridge	United Kingdom	1209	18,977
19	Johns Hopkins University	USA	1876	25,151
20	University of Tokyo	Japan	1877	28,253
21	California Institute of Technology	USA	1891	2,238
22	Osaka University	Japan	1931	23,288
23	University of Michigan System	USA	1817	63,177
24	Northwestern University	USA	1851	22,008
25	University of Wisconsin System	USA	1848	170,000
26	Kyoto University	Japan	1897	22,481
27	University of Minnesota System	USA	1851	43,000
28	University of Illinois System	USA	1867	85,597
29	Georgia Institute of Technology	USA	1885	29,376
30	University of Utah	USA	1850	32,800
31	University of Erlangen Nuremberg	Germany	1743	37,882
32	The Ohio State University	USA	1870	59,837
33	Columbia University	USA	1754	30,454
34	Seoul National University	South Korea	1946 (1895)	26,470
35	University of Toronto	Canada	1827	88,766
36	Tohoku University	Japan	1907	17,982
37	University of Pittsburgh	USA	1787	28,642
38	Yale University	USA	1701	12,974
39	Sungkyunkwan University	South Korea	1895 (1398)	33,768
40	University of Oxford	United Kingdom	1096	19,790
41	University of Colorado System	USA	1876	66,728
42	Tufts University	USA	1852	11,449
43	Baylor College of Medicine	USA	1969 (1900)	1,585
44	Tsinghua University	China	1911	47,762
45	Technical University of Munich	Germany	1868	36,929
46	Kyushu University	Japan	1903	18,696
47	Tokyo Institute of Technology	Japan	1929 (1881)	9,570
48	University College London	United Kingdom	1826	38,000
49	Swiss Federal Institute of Technology Zurich (ETHZ)	Switzerland	1855	18,616
50	Purdue University System	USA	1869	43,411

Note. Reuters (2018a) Top 100: The World's Most Innovative Universities ranking list based on Clarivate methodology (2018b).

Table 2

Reuters 2018 Most Innovative Universities Adaptation, 51-100

Ranking	University	Country	Year Established	Students
51	University of Chicago	USA	1890	16,227
52	Oregon Health & Science University	USA	1995 (1887)	2,895
53	University of Manchester	United Kingdom	1824	34,469
54	Indiana University System	USA	1820	114,000
55	University of Montpellier	France	2012 (1289)	47,000
56	University of Munich	Germany	1472	50,918
57	Technical University of Denmark	Denmark	1829	8,063
58	Emory University	USA	1836	14,236
59	Peking University	China	1912 (1898)	42,316
60	Sorbonne University	France	2018 (1150)	55,300
61	University of British Columbia	Canada	1915	65,012
62	Delft University of Technology	Netherlands	1842	21,651
63	National University of Singapore	Singapore	1980 (1905)	30,602
64	Princeton University	USA	1746	8,273
65	University of Zurich	Switzerland	1833	26,042
66	Hanyang University	South Korea	1959 (1939)	20,879
67	Case Western Reserve University	USA	1967 (1826)	11,824
68	Yonsei University	South Korea	1885	29,502
69	Rutgers State University New Brunswick	USA	1766	49,577
70	Boston University	USA	1869 (1839)	33,355
71	University of Massachusetts System	USA	1863	74,572
72	Johannes Gutenberg University of Mainz	Germany	1477	33,000
73	Wake Forest University	USA	1967 (1832)	8,116
74	Keio University	Japan	1858	33,500
75	Korea University	South Korea	1905	23,037
76	University of Florida	USA	1853	52,367
77	Leiden University	Netherlands	1575	23,597
78	University of Paris Descartes - Paris 5	France	1971 (1150)	38,900
79	Hebrew University of Jerusalem	Israel	1918	23,500
80	University of Cincinnati	USA	1819	37,155
81	University of Freiburg	Germany	1457	25,890
82	Ruprecht Karl University Heidelberg	Germany	1386	29,527
83	State University of New York System	USA	1948	431,855
84	University of Claude Bernard - Lyon 1	France	1971	45,258
85	University of Virginia	USA	1819	24,360
86	Dresden University of Technology	Germany	1828	34,838
87	University of Iowa	USA	1847	32,166
88	Ghent University	Belgium	1817	35,374
89	Shanghai Jiao Tong University	China	1896	37,288
90	Hokkaido University	Japan	1947 (1876)	18,038
91	Tel Aviv University	Israel	1956	23,663
92	Karlsruhe Institute of Technology	Germany	2009 (1825)	25,948
93	Zhejiang University	China	1928 (1897)	50,051
94	Fudan University	China	1905	32,859
95	University of Miami	USA	1925	17,003
96	Arizona State University	USA	1958 (1886)	98,146
97	University of Paris Sud - Paris 11	France	1970	32,000
98	Gwangju Institute of Science & Technology	South Korea	1995	N/A
99	Nagoya University	Japan	1939	15,594
100	Free University of Berlin	Germany	1948	32,909

Note. Reuters (2018a) Top 100: The World's Most Innovative Universities ranking list based on Clarivate methodology (2018b).

Once the mission statements were sourced, the coding process began with identifying categories, codes, and quotations (Holley & Harris, 2019). A coding process enabled the close

examination of institutional missions and their references to heritage, innovation, societies served, and other distinguishing features. Saldaña (2016) defined the act of coding for qualitative purposes as identifying a "word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute" and becoming a "researcher-generated construct" (p. 4).

Coding methods were informed by the systematic approach employed by Morphew and Hartley (2006) and their investigation of varied American institutions. First, they included a mixture of single words and phrases as they developed themes. They did not predetermine a priori codes (Miles et al., 2014) but did have hypotheses of themes that emerged. For this research, the conceptual model for the first research question (see Figure 4) established predetermined categories and Concept Codes based on the literature but did not predict the specific words, phrases, nor incidence within each major category. Of note, Bayrak (2020) conducted a content analysis of mission statements for the top ranked institutions from the *Times Higher Education* ranking for five global regions for comparative purposes utilizing key words. In addition, British and Jamaican researchers, Ellis and Miller (2014), conducted a content analysis on mission statements for seven Jamaican universities which provided an example of how this research methodology could be relevant beyond high research universities in understanding how HEIs signaled institutional priorities.

During the coding process, the data was pre-coded and accompanied by preliminary jottings, both practices recommended by Saldaña (2016). Pre-coding data enabled the opportunity to identify observations that reinforced the conceptualization related to mission and innovation rhetoric as well as noted coding directions for future studies that were beyond the scope of this work (e.g., equity and access, prestige, local/national/international communities served, etc.). Additional preliminary jottings allowed for observations beyond coding considerations such as length of statements – some were a few words versus others that provided great depth with elements typically found in strategic plans.

Before moving into the coding process for all university mission statements, a pilot was conducted to allow an exploratory means to analyze data related to traditional missions and innovation at the University of Oxford (Oxford). Oxford was selected given its historic traditions as the oldest university on the ranking list with direct reference to innovation in their mission statement; their rhetoric represented the heart of this study. Specifically, the mission statement document was sourced and coded using In Vivo Coding to highlight applicable quotations in the text. In Vivo Coding provided the specific language self-professed by the University of Oxford which was central to understanding how HEIs discussed traditional mission and innovation in their mission statements.

As a result of the Oxford pilot, the coding types for this project were confirmed as Concept and In Vivo Coding to understand the specific language, frequency, and prioritization associated with traditional missions and the strategic use of innovation. Concept Codes assigned broader meaning to the words coded (Saldaña, 2016) and were accompanied by predetermined categories resulting from the literature. In Vivo Codes utilized the actual rhetoric of words or short phrases, which were important to the legitimizing tendencies of institutional theory (Author Unknown, 2004).

Through this review, Concept and In Vivo Coding was used to summarize key words using Computer Assisted Qualitative Data Analysis Software (CAQDAS) software. Miles et al. (2014) explicated how CAQDAS provided a repository of archival data for coding, annotating, and displaying data. The coding software did not take the place of the actual coding process; however, it stored all publicly available mission statements and enabled categorization and manipulation of the data for analytical, publication, and presentation purposes (Saldaña, 2016). After assessing three CAQDAS programs, ATLAS.ti was selected given its robust features from coding, quantitizing, visual, and mapping standpoints.

Phase II: Content/Archival Review of Strategic Plans and Institutional Mission Alignment

In Phase II of the research, a more in-depth content/archival review of ten universities explored how mission statements and strategic plans aligned within institutions to examine each university's stated declarations of institutional purpose and the strategic use of innovation to illuminate their mission-driven or mission-drifting incidence. The examination of multiple institutions increased the validity and transferability relative to a single institutional review which was important to this research given the variety of institutions and international regions represented (Merriam & Tisdell, 2016).

This study focused on the Top 100 innovative universities internationally representing three continents (46% in the U.S., 27% in Europe, and 23% in Asia) which emphasized the importance of studying countries from within these regions. Note that the U.S. was treated as a "continent" given the strong incidence within the country alone with only two universities represented in Canada. The other country not represented from the Top 100 was Israel with two universities listed in the Top 100.

The unit of analysis for Phase II initially included eight international institutions preliminarily selected based on a quota sampling technique in which four universities were identified from the United States, two from Europe and two from Asia. The following logic was used for preliminary selection and was confirmed upon a descriptive statistics review at the institutional level (years founded in parentheses): Stanford (1891), ranked first - the top innovative university in the world; Harvard (1636), ranked third and Oxford (1096), ranked 40th – both recognized for longevity and traditional missions; KU Leuven (1425), ranked first for Europe and seventh overall; University of Tokyo (1877), ranked 20th with the highest ranking coupled with institutional longevity in Asia; Georgia Institute of Technology (1885), ranked 29th and a technology focus in the U.S. southeast; The University of Texas System (1881), ranked sixth and representing the most highly ranked university system of 235,000 students; and the National University of Singapore (NUS), ranked 63rd - the newest country to be represented in the Top 100 list (Reuters, 2018a). The descriptive statistics analysis at the institutional level led to the addition of two universities, University of Virginia and Technology University of Munich for a total of ten universities – five from the U.S., three from Europe, and two from Asia (see Table 3).

Table 3
Phase II Institutional Comparison Ranked by Institutional Year Established

University	Top 100 Ranking	Country	Public/ Private	Year Institution Established	Year Country Established	Students
Oxford	40	England	Private Publicly Funded	1096	927	19,760
KU-Leuven	7	Belgium	Private Publicly Funded	1425	1830	56,351
Harvard	3	USA - NE	Private	1636	1776	31,120
University of Virginia	85	USA - East	Public	1819	1776	24,360
Technical University of Munich	45	Germany	Public	1868	1871	36,929
University of Tokyo	20	Japan	Public	1877	660	28,253
The University of Texas System	6	USA - SW	Public	1883	1776	235,000
Georgia Tech	29	USA - SE	Public	1885	1776	29,376
Stanford	1	USA - West	Private	1891	1776	17,534
National University of Singapore	63	Singapore	Public	1980 (1905)	1965	30,602

Note: Rankings, public/private designation, year established, and total number of students were reported by Reuters (2018a) listing of the Top 100 innovative universities.

In Phase II, a subsequent content analysis was conducted by examining the publicly available strategic plans for the ten universities selected. A coding process enabled the close examination of strategic plans related to mission and strategic innovation. Through this review, In Vivo Coding was used to summarize key words using ATLAS.ti software (Miles et al., 2014). The In Vivo Codes from Phase I were aligned with themes from Phase II to assess mission-driven and potential mission drift activity.

After the data collection phase, hypotheses were assessed to look for evidence of isomorphism and distinguishing features. Hypotheses were established based on the literature to be used for analytical and comparative purposes.

H1: Given the longevity of most institutions and their recognition as innovators within higher education, mission statements will comprise some similar and some differentiated elements.

Institutional theory emphasized the normative behaviors of universities (Meyer & Rowan, 1977); however, potential was also posited for institutions to provide distinctive positioning (Harris, 2013; Morphew & Hartley, 2006). Additionally, Porter (1996) discussed the differentiating tendencies of institutional strategy for industry which may or may not apply to higher education institutions.

H2: Some commonalities will exist within institutional types (e.g., public versus private, comprehensive versus technology/STEM-focused, by region).

Institutional diversity (e.g., regions served, student populations, comprehensive versus technology-driven, publicly funded versus private) can impact institutional purpose and priorities (e.g., Harris, 2013; Thelin, 2019). Bayrak (2020) examined HEIs from five global regions and found a combination of similar and distinct terms.

H3: The older the university, the more likely heritage and traditional mission will be emphasized.

Rose (2017) investigated the evidence of heritage rhetoric in university communications and found that promoting longevity was viewed as positive among students and their parents, especially when linking history to the present.

H4: The newer and technology-driven universities will emphasize innovation.

Dickeson (2010), Ellis and Miller (2014), and Gardner (1961) argued that university rhetoric should reflect the distinctiveness of the institution. HEIs focused on technology, a direct association with innovation, (*Chronicle*, 2019) would emphasize this differentiation from other institutional types.

The hypotheses were revisited following the data collection and analysis review as a means of sensemaking to lead into the Summary of Findings section.

Data Collection and Analysis

Data supported the research questions through the analysis in two phases. The first question examined how highly innovative universities communicated their traditional missions and innovation in their mission statements. Before moving into the first phase, an interdisciplinary contextual overview was provided to examine geographic, historical, and financial factors on a macro basis. For Phase I, an assessment was conducted on the accessibility of mission statements and strategic plans (e.g., how many of the Top 100 have published mission statements and strategic plans on their websites?). Then, predetermined categories and corresponding Concept Codes were assigned from the literature on missions and innovation in higher education. From there, a qualitative sampling of In Vivo Codes within each Concept Code was provided as a means of sensemaking, confirming of coding methodologies, and determining the emergence of themes.

The second research question investigated the extent to which innovation strategies as stated in their strategic plans aligned with their mission statements. The codes and themes identified in Phase I would be applied to the innovation rhetoric within strategic plans for Phase II to assess alignment against their respective institutional missions.

Interdisciplinary Contextual Overview: Geographic, Historical, and Financial

Excerpts from the following section were recently published by the European Conference on Education under the heading "Interdisciplinarity and the Top 100" (Montgomery, 2020b) and in the *Journal of Management Science and Business Intelligence* article titled "International financial comparative analysis" (Montgomery, 2020a).

Before proceeding with Phases I and II, broader context was examined from a quantitative lens geographically, historically, and financially by featuring literature and data on ATLAS.ti geospatial maps. The interdisciplinary contextual analysis began with an overview geographically to provide incidence of the institutions at continent, country, and institutional levels. To create this map, all institutions were loaded into ATLAS.ti (2020) CAQDAS software (Contreros, 2017). Geographic findings reported international innovative universities to primarily represent three continents (46 in the U.S., 27 in Europe, and 23 in Asia). Note that the U.S. was treated as a "continent" given the strong incidence within the country alone with only two countries represented in Canada. Figure 5 projected this spatial view showing the majority of highly recognized universities to be located in few concentrated areas – the northeastern United States, western Europe (Germany, France, United Kingdom, Switzerland, Belgium, Netherlands, and Denmark), and the Asian Pacific Rim (Japan, Korea, China, and Singapore).

Figure 5

International Institutions Recognized for Innovation (Reuters, 2018a): Map of Geographic Dispersion Utilizing ATLAS.ti Software

Upon deeper exploration, geographic composition was examined by quadrants which showed some differing prominence across continents compared to the rankings list (Reuters, 2018a). For instance, the United States was not only recognized for the most institutions but also showed a disproportionately high percentage of top 25 institutions (68% of top 25 institutions versus 46% of the Top 100 institutions) versus Europe and Asia. Europe and Asia shared equal presence in the top 25 ranking, Asia moved ahead of Europe in the second quadrant, while Europe moved ahead of Asia in the third quadrant and over both the U.S. and Asia in the fourth quadrant (see Table 4).

Table 4

International Institutions Recognized for Innovation (Reuters, 2018a) – Geographic Composition by Rankings Quadrant

Top 25			26-50			51-75			75-100		
Region	#	%	Region	#	%	Region	#	%	Region	#	%
U.S.	17	68%	U.S.	12	48%	U.S.	10	40%	Europe	10	40%
Europe	4	16%	Asia	7	28%	Europe	8	32%	U.S.	7	28%
Asia	4	16%	Europe	5	20%	Asia	6	24%	Asia	6	24%
Other	0	0%	Other	1	4%	Other	1	4%	Other	2	8%
Total	25	100%	Total	25	100%	Total	25	100%	Total	25	100%

To examine from an interdisciplinary perspective, historical descriptive statistics of university founding dates were added to the geospatial map. Of note, Europe spanned the largest range of institutional origins, 1096-2009, with the oldest mean, 1716, and median, 1828. Moving west, the U.S. comprised the next broadest range, 1636-1995, and older mean, 1849, and median, 1861. Then, further to the west, Asia represented the smallest range, 1858-1980, with the newest mean, 1918, and median of 1905 (see Figure 6).

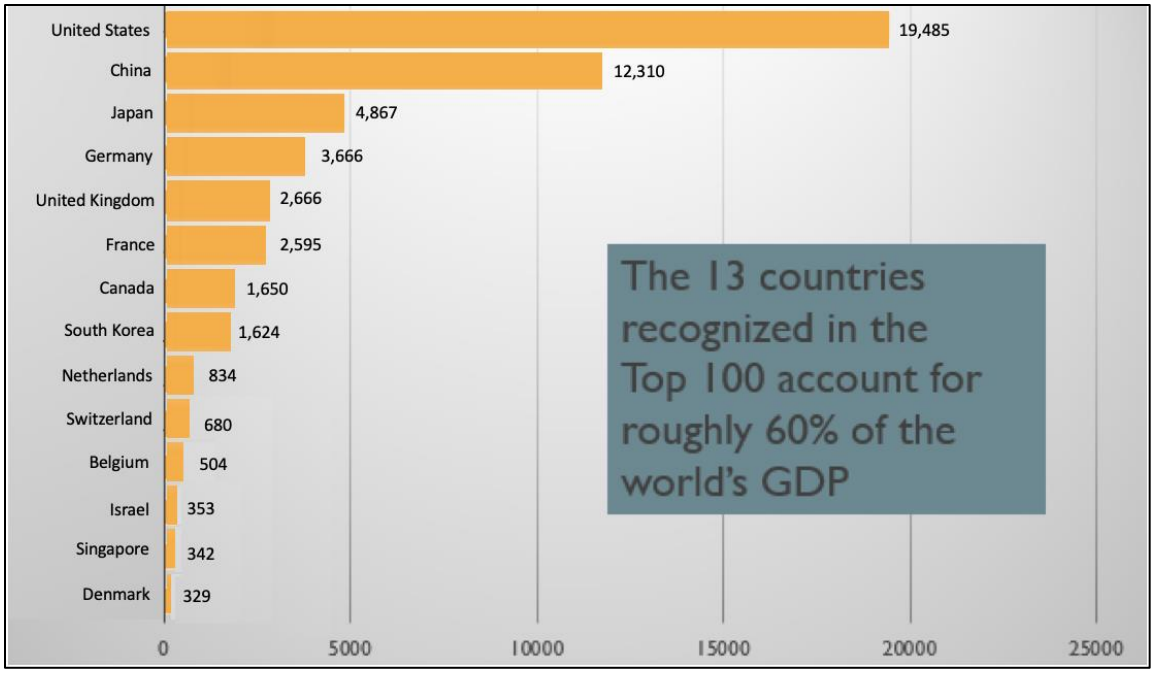
Figure 6

International Institutions Recognized for Innovation (Reuters, 2018a) – Year of Universities Founded by Region (Range, Mean, and Median) on Map Utilizing ATLAS.ti Software

Financially, all countries benefited from strong Gross Domestic Products (GDPs) for their respective countries which was one statistical measure of economic progress (Lange et al., 2018). The World Bank (2017) defined gross domestic product as an economic measure of domestic production at the national level. Figures are reported by each country with some adjustments made by the World Bank to achieve more consistent statistical comparisons as warranted. The 13 countries represented in the Top 100 (Reuters, 2018a) accounted for roughly 60% of the world's GDP based on the 2017 figures published by the World Bank (2017) (see Figure 7 for a GDP breakdown by country reported in U.S. billion dollars).

Figure 7

International Institutions Recognized for Innovation (Reuters, 2018a) – GDP by Country in Billions (World Bank, 2017)



The United States led GDP at 38% for the countries represented on the Top 100 list (Reuters, 2018a) which is -8 percentage points less than the 46% of universities represented. Asia comprised 37% of GDP which was +15 percentage points higher than the 22% of universities represented. Europe's GDP was 22% for the countries on the Top 100 list which was within 5 percentage points of the 27% of universities represented, the narrowest gap between GDP and university representation on the Top 100 list (Reuters, 2018a). Figure 8 overlaid the total GDP figures for the U.S., Asia, and Europe on the Top 100 international institutions recognized for innovation (Reuters, 2018a).

Figure 8

International Institutions Recognized for Innovation (Reuters, 2018a) – GDP by Region on Map Utilizing ATLAS.ti Software

In summary, the interdisciplinary analysis explored geographic, historical, and financial data more broadly. First, geospatial mapping was created using ATLAS.ti software to visually depict the disbursement of top-ranked universities by global region – 46 in the United States, 27 in Europe, and 23 in Asia. From there, historical statistics were added to the map to represent findings of the oldest and largest span of university founding dates in Europe to the newest universities with smallest range of founding dates in Asia. Interestingly, when examining GDP, the U.S. reported the highest numbers followed closely by Asia, and Europe as the oldest region comprising significantly lower GDP resources.

Phase I: Mission Statement Collection and Analysis

Excerpts from the following section were recently published by the European Conference on Education under the heading "Interdisciplinarity and the Top 100" (Montgomery, 2020b) and the Asian Conference on Education under the heading "Unpacking mission statements" (Montgomery, 2021).

Retrieving Content/Archival Data

The first step was to source mission and vision statements, mostly self-published on university websites, which were saved in individual files and uploaded to ATLAS.ti. Additionally, links to strategic plans were recorded to be used later for specific universities selected for Phase II while researching university websites for efficiency purposes. While strategic plans were not coded in Phase I, the confirmation of public access to strategic plans was

factored into specific universities under consideration for the Phase II analysis. Of note, most international universities in which English was not the first language still included English translations on their websites. The typography for the Top 100 universities (Reuters, 2018a) consisted of 76 mission statements, 44 vision statements – 85 institutions in total – along with 67 strategic plans that had been identified.

Most documents published by each institution clearly labeled mission and vision statements as well as strategic plans. In a few instances, mission language was embedded in other documents such as with Stanford (2020b) referencing the mission within their more pronounced vision statement. Also, of note, Tsinghua University (2020a) and Peking University (2020) did not create a mission statement per se, but used mission language in general statements on their institutional website. Such anomalies were noted in Tables 5 and 6 as part of the comprehensive list of available mission statements and strategic plan documents publicly available for the Top 100 universities.

Table 5

Reuters 2018 Most Innovative Universities – Mission Statements, Vision Statements, Strategic Plans, 1-50

Rank	University	Country	Year Established	Students	Mission	Vision	Strategic Plan
1	Stanford University	USA	1891	17,534	X (in vision)	X	X
2	Massachusetts Institute of Technology (MIT)	USA	1861	11,466	X	--	--
3	Harvard University	USA	1636	31,120	X	X	X (fin plan)
4	University of Pennsylvania	USA	1740	25,367	(pres. letter)	X	X
5	University of Washington	USA	1861	56,809	--	X	X
6	The University of Texas System	USA	1883	235,000	X	--	X
7	KU Leuven	Belgium	1425	56,351	X (in plan)	--	X (pol plan)
8	Imperial College London	United Kingdom	2007 (1907)	15,317	X	X	X
9	University of North Carolina Chapel Hill	USA	1776	29,911	X	--	X
10	Vanderbilt University	USA	1873	12,592	X	--	X
11	Korea Advanced Institute of Science & Technology	South Korea	1971	9,463	X	--	--
12	Swiss Federal lnstitute of Technology Lausanne	Switzerland	1969 (1853)	9,750	X	--	--
13	Pohang University of Science & Technology	South Korea	1986	3,581	--	--	--
14	University of California System	USA	1869	238,700	X	--	X
15	University of Southern California	USA	1880	45,687	X	X	X
16	Cornell University	USA	1865	23,016	X	X	X
17	Duke University	USA	1838	16,130	X	X	X
18	University of Cambridge	United Kingdom	1209	18,977	X	--	--
19	Johns Hopkins University	USA	1876	25,151	X	--	--
20	University of Tokyo	Japan	1877	28,253	X	--	X
21	California Institute of Technology	USA	1891	2,238	X	--	--
22	Osaka University	Japan	1931	23,288	X (in vision)	X	X
23	University of Michigan System	USA	1817	63,177	X	--	--
24	Northwestern University	USA	1851	22,008	X	--	X
25	University of Wisconsin System	USA	1848	170,000	X	--	X
26	Kyoto University	Japan	1897	22,481	X	X	X
27	University of Minnesota System	USA	1851	43,000	X	--	X
28	University of Illinois System	USA	1867	85,597	X	X	X
29	Georgia Institute of Technology	USA	1885	29,376	X	X	X
30	University of Utah	USA	1850	32,800	X	--	X
31	University of Erlangen Nuremberg	Germany	1743	37,882	X	--	X
32	The Ohio State University	USA	1870	59,837	X	X	X
33	Columbia University	USA	1754	30,454	X	--	--
34	Seoul National University	South Korea	1946 (1895)	26,470	X	X	X
35	University of Toronto	Canada	1827	88,766	X	--	--
36	Tohoku University	Japan	1907	17,982	--	X	X
37	University of Pittsburgh	USA	1787	28,642	X	--	X
38	Yale University	USA	1701	12,974	--	X	--
39	Sungkyunkwan University	South Korea	1895 (1398)	33,768	--	X	X
40	University of Oxford	United Kingdom	1096	19,790	X	X	X
41	University of Colorado System	USA	1876	66,728	X	X	X
42	Tufts University	USA	1852	11,449	X	X	X
43	Baylor College of Medicine	USA	1969 (1900)	1,585	X	X	X
44	Tsinghua University	China	1911	47,762	gen (M lang)	--	X
45	Technical University of Munich	Germany	1868	36,929	X	--	X
46	Kyushu University	Japan	1903	18,696	X	X	X
47	Tokyo Institute of Technology	Japan	1929 (1881)	9,570	X	--	X
48	University College London	United Kingdom	1826	38,000	X	X	X
49	Swiss Federal Institute of Technology Zurich	Switzerland	1855	18,616	X	--	X
50	Purdue University System	USA	1869	43,411	X	X	X

Note. Reuters (2018a) Top 100: The World's Most Innovative Universities ranking list based on Clarivate methodology (2018b).

Table 6

Reuters 2018 Most Innovative Universities – Mission Statements, Vision Statements, Strategic Plans, 51-100

Ranking	University	Country	Year Established	Students	Mission	Vision	Strategic Plan
51	University of Chicago	USA	1890	16,227	--	--	--
52	Oregon Health & Science University	USA	1995 (1887)	2,895	X	X	X
53	University of Manchester	United Kingdom	1824	34,469	X	X	X
54	Indiana University System	USA	1820	114,000	X	X	X
55	University of Montpellier	France	2012 (1289)	47,000	--	--	--
56	University of Munich	Germany	1472	50,918	X	--	X
57	Technical University of Denmark	Denmark	1829	8,063	X	X	X
58	Emory University	USA	1836	14,236	X	X	X
59	Peking University	China	1912 (1898)	42,316	gen (M lang)	--	X
60	Sorbonne University	France	2018 (1150)	55,300	X	X	X
61	University of British Columbia	Canada	1915	65,012	X	X	X
62	Delft University of Technology	Netherlands	1842	21,651	X	X	X
63	National University of Singapore	Singapore	1980 (1905)	30,602	X	X	X
64	Princeton University	USA	1746	8,273	X	--	X
65	University of Zurich	Switzerland	1833	26,042	X	--	X
66	Hanyang University	South Korea	1959 (1939)	20,879	--	--	--
67	Case Western Reserve University	USA	1967 (1826)	11,824	X	X	X
68	Yonsei University	South Korea	1885	29,502	X	--	--
69	Rutgers State University New Brunswick	USA	1766	49,577	X	--	X
70	Boston University	USA	1869 (1839)	33,355	X	--	X
71	University of Massachusetts System	USA	1863	74,572	--	--	--
72	Johannes Gutenberg University of Mainz	Germany	1477	33,000	X	--	X
73	Wake Forest University	USA	1967 (1832)	8,116	X	X	X
74	Keio University	Japan	1858	33,500	X	X	--
75	Korea University	South Korea	1905	23,037	--	X	X
76	University of Florida	USA	1853	52,367	X	--	X
77	Leiden University	Netherlands	1575	23,597	X	X	X
78	University of Paris Descartes - Paris 5	France	1971 (1150)	38,900	--	--	--
79	Hebrew University of Jerusalem	Israel	1918	23,500	--	--	X
80	University of Cincinnati	USA	1819	37,155	X	X	X
81	University of Freiburg	Germany	1457	25,890	X	--	--
82	Ruprecht Karl University Heidelberg	Germany	1386	29,527	X	X	X
83	State University of New York System	USA	1948	431,855	X	--	X
84	University of Claude Bernard - Lyon 1	France	1971	45,258	--	--	--
85	University of Virginia	USA	1819	24,360	X	X	X
86	Dresden University of Technology	Germany	1828	34,838	X	--	--
87	University of Iowa	USA	1847	32,166	X	X	X
88	Ghent University	Belgium	1817	35,374	X	--	--
89	Shanghai Jiao Tong University	China	1896	37,288	--	--	--
90	Hokkaido University	Japan	1947 (1876)	18,038	--	--	X
91	Tel Aviv University	Israel	1956	23,663	--	--	--
92	Karlsruhe Institute of Technology	Germany	2009 (1825)	25,948	X	--	X
93	Zhejiang University	China	1928 (1897)	50,051	X	X	X
94	Fudan University	China	1905	32,859	--	--	--
95	University of Miami	USA	1925	17,003	X	--	X (road map)
96	Arizona State University	USA	1958 (1886)	98,146	X	--	X (goals)
97	University of Paris Sud - Paris 11	France	1970	32,000	--	--	--
98	Gwangju Institute of Science & Technology	South Korea	1995	N/A	X	X	X
99	Nagoya University	Japan	1939	15,594	--	--	--
100	Free University of Berlin	Germany	1948	32,909	--	--	--

Note. Reuters (2018a) Top 100: The World's Most Innovative Universities ranking list based on Clarivate methodology (2018b).

In Vivo Coding Test – University of Oxford

Before moving into the coding process for all university mission statements, a pilot was conducted with a single institution to allow an exploratory means to analyze data related to traditional missions and innovation. Oxford was selected given its historic traditions as the oldest university on the ranking list with direct reference to innovation in their mission statement; their

rhetoric was at the heart of this study. Specifically, mission and vision statements were collected, coded, and categorized. For the pilot, I began highlighting quotations in ATLAS.ti using their In Vivo Coding tool as the specific language self-professed by Oxford was central to my analysis (see Figure 9 for a screenshot of the quotations highlighted using the ATLAS.ti In Vivo Coding tool).

Figure 9
In Vivo Coding Pilot – University of Oxford

From the initial list of quotations generated from the In Vivo Coding tool, shorter codes were generated (see Figure 10).

Figure 10
In Vivo Pilot – List of University of Oxford In Vivo Codes

Artifact - In Vivo Coding
Advancement of learning by teaching and research
Benefit society
Local, regional, national and global scale
Long-standing traditions
Independent scholarship and academic freedom
Collegiate structure
Innovation and collaboration
Sense of community
Distinctive democratic structure
Born of its history
Diverse staff and student body
Engendering inclusivity
Equality of opportunity
Interdisciplinary nature
Staff and student wellbeing
Teaching strength
Very best students and staff
Work as one Oxford
World-class research and education

This In Vivo Coding allowed me to identify quotations to familiarize myself with specific mission and innovation rhetoric that would provide context and confirm Concept and In Vivo Coding. Oxford (2020) quotations related to mission included "advancement of learning by teaching and research" (para. 1) and "benefit society on a local, regional, national and global scale" (para. 2). Several codes emerged for future studies such as "diverse staff and student body" and "equality of opportunity" (para. 3).

Additionally, I prepared an analytical memo at the time of actually coding as a means to capture observations while top of mind. I was able to reflect on the data and build connections with my experiences and potential biases leading into the study. In addition, I noted initial reactions – in the case of Oxford, I was not surprised to see their acknowledgement of a strong history given their founding almost one thousand years ago; however, I was surprised to see their intentional citing of innovation. One reflection from the analytical memo captured my initial interest in Oxford (2020) and rationale for selecting them for the pilot: "University's long-standing traditions of independent scholarship and academic freedom while fostering a culture in which innovation and collaboration play an important role…" (para. 2) (see Figure 11).

Figure 11
In Vivo Pilot – University of Oxford Analytical Memo

Analytical Memo
I really liked the technique of In Vivo Coding. It allowed for the rich and illuminating rhetoric proclaimed by the university. Even though I am very familiar with innovation approaches based on my professional and academic experiences, it was interesting to examine how Oxford was operationalizing innovation. One of the most interesting advancements for my work was to think of innovation within the scope of university mission versus innovation beyond the traditional mission. For instance, a lot of the innovation focused on how academics could bring their research to external audiences. I particularly liked one quote: "University's long-standing traditions of independent scholarship and academic freedom while fostering a culture in which innovation and collaboration play an important role…" (para. 2).

This pilot proved invaluable in several ways. First, it provided the beginnings of the coding process through an exploratory exercise of mission statement artifacts. Second, it allowed me to engage more deliberately with the ATLAS.ti CAQDAS software.

Coding Selection for All Universities Measured

As a result of the pilot study, I reassessed the coding I would use for Phase I, moving from Descriptive Coding originally considered at the dissertation proposal stage to coding methodologies more applicable to this research, In Vivo Coding and Concept Coding. In Vivo Coding allowed me to identify quotations illuminating specific mission and innovation rhetoric that would be applicable for an additional technique, Concept Coding, to provide deeper meanings assigned beyond the rhetoric used by each university based on the literature (Saldaña, 2016). The two coding processes complemented each other well. Concept Coding exposed the rhetoric used by the university to demonstrate meaning and prioritizations within the University's mission and vision statements and was determined by the specific verbatims within In Vivo Coding also evidenced in the literature. In reviewing the mission statement documents collected, I was able to assign Concept and In Vivo Codes simultaneously in ATLAS.ti – in essence, highlighting the quotation (utilizing the In Vivo Code function) for the attributed theme (Concept Code). The longer quotations highlighted first provided helpful context before shortening In Vivo Codes as a means of summarizing the rhetoric.

When beginning the formal coding process (Saldaña, 2016), I began to synthesize the data by building on the Concept Codes in light of the data collected. For instance, some of the preliminary codes based on my research were maintained such as innovation, teaching, and research. I also recognized the need to create two catch-all codes, General Mission Phraseology and General Innovation Phraseology, for quotations that did not fall into the more detailed Concept Codes (see Figure 12 for a Category and Concept Codes listing). Of note, other codes and general observations did not fall into the categories, yet, played a role in recommendations for future research.

Figure 12
Mission and Innovation Concept Codes List

Category	Concept Codes
Mission	General Mission Phraseology
	Teaching
	Research
	Service
	Traditional Mission
Innovation	General Innovation Phraseology
	Innovation Within Mission
	Innovation Beyond Mission

Definitions for each Concept Code have been summarized for reference purposes in Figure 13.

Figure 13
Mission and Innovation Concept Code Definitions

General Mission Phraseology
Descriptive language related to institutional mission to include words such as mission and purpose and the mentioning of mission components (dependent on institutional type): teaching, research, and service their respective communities (Morphew & Hartley, 2006).

Teaching
Institution- and educator-based educational themes such as programs offered and pedagogies (Scott, 2006).

Learning
Student-centered language related to education and learning outcomes.

Research
Discourse related to the generation of knowledge.

Service
Public service provided by the institution to the community as defined locally, regionally, nationally, and/or internationally.

Traditional Mission
Acknowledgement of the institution's heritage and foundational institutional purpose.

General Innovation Phraseology
Descriptive language related to innovation. Pool and Van de Ven (2004) described innovation more broadly as "the wellspring of social and economic progress, and both a product and facilitator of the free exchange of ideas" (p. xi).

Innovation Within Mission
New ideas, approaches, and actions related to the common elements of university missions – teaching, research, and service.

Innovation Beyond Mission
New ideas, approaches, and actions not related to teaching, research, and service, the common elements of university missions.

Mission statement documents were coded for all 85 universities. A representative sample of the shortened In Vivo Codes were provided for each Concept Code from the complete list stored in ATLAS.ti. Note that the universities were renumbered based on their Reuters ranking order for the 85 universities with publicly available mission statements that were uploaded into

ATLAS.ti (see Figure 14 for a screenshot from ATLAS.ti). These new ranking numbers were used throughout the data analysis to reflect the publicly available documents (n=85) as opposed to the entire Reuters ranking list (n=100).

Figure 14
Reuters 2018 Most Innovative Universities with Publicly Available Mission Statements, 1-85

1	MV_Stanford.docx	22	MV_UMichSystem.docx	43	MV_Tsinghua.docx	64	MV_Yonsei.docx
2	MV_MIT.docx	23	MV_Northwestern.docx	44	MV_TechUnivMunich.docx	65	MV_Rutgers.docx
3	MV_Harvard.docx	24	MV_UWiscSystem.docx	45	MV_Kyushu.docx	66	MV_BostonU.docx
4	MV_UPenn.docx	25	MV_Kyoto.docx	46	MV_TokyoInstTech.docx	67	MV_JohannesGutenberg.docx
5	MV_UWash.docx	26	MV_UMinn.docx	47	MV_UnivCollegeLondon.docx	68	MV_WakeForest.docx
6	MV_UTexasSystem.docx	27	MV_UIllinoisSystem.docx	48	MV_SwissFedInstTech.docx	69	MV_KeioU.docx
7	MV_KULeuven.docx	28	MV_GeorgiaTech.docx	49	MV_PurdueUSystem.docx	70	MV_KoreaU.docx
8	MV_ImperialCollegeLondon.docx	29	MV_UUtah.docx	50	MV_OregonHealthSafety.docx	71	MV_UFlorida.docx
9	MV_UNCChapelHill.docx	30	MV_UErlangen.docx	51	MV_UManchester.docx	72	MV_Leiden.docx
10	MV_Vanderbilt.docx	31	MV_OhioState.docx	52	MV_IndianaUSystem.docx	73	MV_UCinncinati.docx
11	MV_KAIST.docx	32	MV_Columbia.docx	53	MV_UMunich.docx	74	MV_UFreiburg.docx
12	MV_EPFL.docx	33	MV_SeoulNatl.docx	54	MV_TechUDenmark.docx	75	MV_RKarlUniv.docx
13	MV_UCalifSystem.docx	34	MV_UToronto.docx	55	MV_Emory.docx	76	MV_SUNYSystem.docx
14	MV_USoCal.docx	35	MV_Tohoku.docx	56	MV_PekingU.docx	77	MV_UVirginia.docx
15	MV_Cornell.docx	36	MV_UPittsburgh.docx	57	MV_Sorbonne.docx	78	MV_DresdenUTech.docx
16	MV_Duke.docx	37	MV_Yale.docx	58	MV_UBritishColumbia.docx	79	MV_UIowa.docx
17	MV_Cambridge.docx	38	MV_Sungkyunkwan.docx	59	MV_DelftUTech.docx	80	MV_Ghent.docx
18	MV_JohnsHopkins.docx	39	MV_Oxford.docx	60	MV_NUSingapore.docx	81	MV_KarlsruheInstTech.docx
19	MV_UTokyo.docx	40	MV_UColoSystem.docx	61	MV_Princeton.docx	82	MV_Zhejiang.docx
20	MV_CalTech.docx	41	MV_Tufts.docx	62	MV_UZurich.docx	83	MV_UMiami.docx
21	MV_Osaka.docx	42	MV_Baylor.docx	63	MV_CaseReserve.docx	84	MV_ASU.docx
						85	MV_Gwangju.docx

Descriptive Statistics Overview

Qualitative results from Phase I were quantitized (Saldaña, 2016) through descriptive statistics to report frequencies of word counts overall and by continent along with frequencies of Mission- and Innovation-related Concept Codes. Institutional theory would suggest normative behavior. By quantifying the data, benchmarks would identify central tendencies (isomorphism) versus variances (distinctive behaviors).

Mission Statement Total Word Count. The first data point assessed the total number of words in mission statements as a way to assess the depth of text to describe the institutional purpose. The mean number of words for the total universities amounted to 205, with Europe higher at 284 words and the U.S. and Asia lower at 194 and 124 words respectively. The ranges of words for each continent provided interesting accounts in that the U.S. and Europe were relatively close in ranges, 23-950 and 28-954 respectively. Asia exhibited mission statements of increased brevity at a range of 14-269. Of note, all universities with statements were left in the analysis as those on the higher and lower ends of the spectrum could be exhibiting less isomorphic behaviors (see Table 7).

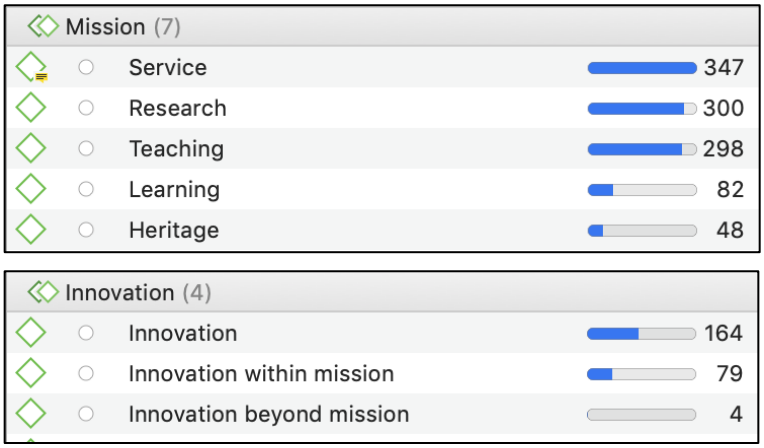
Table 7
International Institutions Recognized for Innovation (Reuters, 2018a): Benchmarks – Total Word Count (University Average)

	Total	Asia	U.S.	Europe
Mean	205	124	194	284
Median	130	94	156	181
Range	14-954	14-269	23-950	28-954
N	85	17	44	21

Note: Numbers reflect ranking based on the Top 100 (Reuters, 2018a) with publicly available documents available, n=85.

Mission Statements Total Mission and Innovation In Vivo Codes. ATLAS.ti software provided useful sorting capabilities to begin to comprehend the data. One of the first examinations captured the landscape by identifying the total number of codes assigned from the 85 mission statements reviewed which amounted to 1,322 codes. Then, the number of codes per category were identified – 1,075 or 81% for Mission and 247 or 19% for Innovation. From there, ATLAS.ti provided a code count by groups led by Service, then Research, Teaching, Learning, and finally, Heritage (an abbreviated term for Traditional Mission in ATLAS.ti) (see Figures 15 at ATLAS.ti screenshots).

Figure 15
ATLAS.ti Code Group for Mission and Innovation Codes



Excerpts from Preliminary Jottings

Initial coding began for the first five mission-vision statements – Stanford University (Stanford), Massachusetts Institute of Technology (MIT), Harvard University (Harvard), University of Pennsylvania (Penn), and University of Washington (UW). Memos were added within the ATLAS.ti software to capture emerging observations. For instance, Stanford (2020a) embedded their mission within their vision statement which was expected given their recognition as the most innovative university in the world. MIT (2020) referenced less research focus than would have been expected given their technology focus and reputation. Harvard's (2020b)

statement was mission-focused – very traditional and focused on teaching of the classical liberal arts and sciences – with no mention or suggestion of innovation. This observation was not surprising in light of the university's heritage, yet, the absence of innovation rhetoric was noteworthy given its high ranking among the Reuters (2018a) Top 100.

Several additional university-specific observations were noted. For instance, The University of Texas System (The UT System, 2020) used an interesting choice of words by referring to human capital (geared towards employers) along with a strong international, global reference. For KU Leuven (2020), no mission or strategic plans were listed on their website, however, mission statement-type language was observed in their "Policy Plans" which resembled typical strategic plans in the United States. University of North Carolina at Chapel Hill (UNC-Chapel Hill, 2020) emphasized a focus on the people of the state, benefits to/service from as evidenced in the following passage:

> Through the efforts of our exceptional faculty and staff, and with generous support from North Carolina's citizens, we invest our knowledge and resources to enhance access to learning and to foster the success and prosperity of each rising generation. (para. 2)

Swiss Federal Institute of Technology Lausanne (2020) proclaimed their mission to focus on research, education, and innovation (not service). For reference, they were one of two national institutes in Switzerland; Swiss Federal Institute of Technology Zurich was also recognized in the Top 100.

Johns Hopkins University (Johns Hopkins, 2020), the original American university to adopt the Germanic, high research model, proclaimed a mission statement unchanged from its founding. The inaugural President of Johns Hopkins, founded in 1876, described that mission:

> To educate its students and cultivate their capacity for lifelong learning, to foster independent and original research, and to bring the benefits of discovery to the world. (para. 3)

Johns Hopkins (2020) proclaimed themes of research, innovation in higher education as the first Germanic model in the United States, and emphasized international scope. In light of these considerations, Johns Hopkins would have made for a provocative university selection in Phase II if their strategic plan was publicly accessible, of which it was not.

For the following section, sample In Vivo Codes portrayed how ATLAS.ti listed them within each Concept Code. The first column, "Number," detailed the document rank order first with a colon separating the second number which referred to the number of the code within the particular institution. For instance, "6:2" referred to the sixth university (The UT System, 2020b) and its first In Vivo Code within the mission statement. The next column listed the In Vivo Code shortened from the original quotation. The third column listed the name of the document; for example, MV_UTexasSystem.docx referred to a mission/vision statement document for the institution, The UT System, in a Microsoft Word file (see Figure 16).

Figure 16
ATLAS.ti Header Explanation – Sample In Vivo Coding Within Each Concept Code

Number	In Vivo Code	Document
6:2	Improve the human condition	MV_UTexasSystem.docx

In Vivo Codes were assigned to each Concept Code delineated between the prescribed Mission and Innovation categories. Preliminary themes emerged upon synthesizing the In Vivo Codes and were noted in italics throughout the narrative. Of note, the themes comprised a combination of newly created phrases and specific verbatim language within some In Vivo Codes that did not warrant reclassifying.

Coding and Emerging Themes Related to Mission

General Mission Phraseology. The first Concept Code, General Mission Phraseology, noted more general descriptive language related to institutional mission to include words such as mission and purpose. In coding the documents of the 85 universities available, hundreds of In Vivo Codes emerged to illuminate a variety of ways mission was framed. Figure 17 highlighted fifteen codes that personified the breadth of codes.

Figure 17
In Vivo Coding Sample List – General Mission Phraseology

Number	In Vivo Code	Document
6:2	Improve human condition	MV_UTexasSystem.docx
18:3	Make scholars, strong, bright, useful, and true	MV_JohnsHopkins.docx
20:3	Benefit society through research integrated with education	MV_CalTech.docx
21:11	New values for the good of society	MV_Osaka.docx
24:7	Broad mission	MV_UWiscSystem.docx
35:1	Individuals capable of flourishing	MV_Tohoku.docx
39:3	World-class research and education	MV_Oxford.docx
44:10	International presence in science and technology	MV_TechUnivMunich.docx
68:14	Development of the whole person	MV_WakeForest.docx
71:11	Contribute and succeed in 21st century	MV_Florida.docx
71:14	Three interlocking elements — teaching, research, and service	MV_UFlorida.docx
74:21	Teaching, learning, and research – the indivisible whole	MV_UFreiburg.docx
76:5	Differentiated and designated missions	MV_SUNYSystem.docx
81:11	Worldwide exchange of knowledge	MV_KarlsruheInstTech.docx
83:24	Model to society	MV_UMiami.docx

Through further analysis, several themes began to emerge with relevance to this research. The first category reinforced the *intertwining and connectivity of widely accepted mission components for high research universities – teaching, research, and service.* Many universities used these specific phrases verbatim in their statements such as the University of Florida (UF, 2020a) listing the "three interlocking elements – teaching, research and scholarship, and service" (71:14). To expand this first theme, the *inclusion of the student-centered dimension of learning*

resulting from teaching was introduced such as with the University of Freiburg (Freiburg, 2020) by stating that "teaching, learning, and research have formed an indivisible whole" (74:21). The term "whole" represented a collective as with the previous category, and also *"development of the whole person"* as defined by Wake Forest University (Wake Forest, 2020) to include "intellectual, moral, spiritual, and physical" components (68:14).

The next theme can be described as *geographies served with varied scope* and was illuminated with the In Vivo Code from The UT System (2020b) in which they proclaimed their "mission… to improve the human condition in Texas, (the) nation and (the) world" (6:2). When considering the internationalization component, *global collaboration* was emphasized with some institutions such as the Karlsruhe Institute of Technology (Karlsruhe, 2020) in which they proclaimed the "worldwide exchange of knowledge, large-scale research projects… enrich life and work" (81:11).

Collaboration has been described as one practice encouraging innovation and can provide an example of the *integration of traditional mission and innovation*. Another example was articulated by Osaka University (Osaka, 2020) and their "mission to nurture those with an innovative mindset and the ability to *create new values for the good of society*" (21:11).

Finally, two themes represent highly recognized universities that discuss *stature language and models for society* within their mission statements as was evidenced with the Oxford (2020) offering "world-class research and education" (39:3) and the University of Miami's (Miami, 2020) "model to society through the steadfast achievement of (their) mission" (83:24).

Teaching. The Teaching Concept Code focused on institution- and instructor-based education such as programs offered and pedagogies (Scott, 2006). Through the coding process, hundreds of In Vivo Codes again emerged to illuminate a multitude of discourse related to teaching as shown with the eighteen In Vivo Codes in Figure 18.

Figure 18
In Vivo Coding Sample List – Teaching

Number	In Vivo Code	Document
8:12	Education for students from around the world	MV_ImperialCollegeLondon.docx
11:3	Human talent cultivation	MV_KAIST.docx
15:8	Preserve and disseminate knowledge	MV_Cornell.docx
27:13	Educate and mentor	MV_UIllinoisSystem.docx
38:8	Education of students	MV_Sungkyunkwan.docx
44:31	Teaching priorities	MV_TechUnivMunich.docx
46:6	Educating highly moral students	MV_TokyoInstTech.docx
52:9	Excellent, relevant, and responsive education	MV_IndianaUSystem.docx
55:16	Courageous leadership in teaching	MV_Emory.docx
62:30	Research and teaching accessible to others	MV_UZurich.docx
65:3	Instructional needs of New Jersey's citizens	MV_Rutgers.docx
68:24	Brightest educators	MV_WakeForest.docx
71:12	Multi-cultural skills in teaching and research	MV_UFlorida.docx
74:29	Excellence of instruction in all academic disciplines	MV_UFreiburg.docx
74:52	Intensive exchange of students and lecturers	MV_UFreiburg.docx
77:26	Quality of the classroom	MV_UVirginia.docx
78:15	Passionate teaching	MV_DresdenUTech.docx
80:4	Development-oriented educational environment	MV_Ghent.docx

Emerging themes were first tied to teaching as a function such as with Cornell University's (Cornell, 2020b) declaration to *"preserve and disseminate knowledge"* (15:8) and *meet the needs of institutional constituencies* such as Rutgers' promise to provide the "instructional needs of New Jersey's citizens" (65:3). These needs translated to *teaching designed for skill-related outcomes* as outlined by the Imperial College of London (ICL, 2020a) (8:12).

The next wave of themes associated teaching and the human element whether it be teachers and/or with their students. For instance, emphasis was placed on the *quality and excellence of instruction* such as "passionate teaching" articulated by the Dresden Technical Institute (Dresden, 2020) (78:15) and the "brightest educators" by Wake Forest (68:24). The human element expanded to also include the *connection between educators and students* as Freiburg (2020) described as an "intensive exchange of students and lecturers" (74:52).

Some institutions such as the University of Zurich (UZ, 2020) acknowledged the importance of teaching accessibility (62:30). Others specifically referenced access for *education made available for international students* such as ICL (2020a) providing "education for students from around the world that equips them with… knowledge and skills" (8:12).

Learning. The Learning Concept Code focused on student-centered language related to education and learning outcomes (Scott, 2006). In assigning In Vivo Codes, I observed that there was less rhetoric focused on Learning relative to Teaching just discussed with half the number of sample In Vivo Codes listed (see Figure 19).

Figure 19

In Vivo Coding Sample List – Learning

Number	In Vivo Code	Document
3:4	Journey of intellectual transformation	MV_Harvard.docx
45:11	Superb learning environments	MV_Kyushu.docx
56:9	Diverse branches of learning	MV_PekingU.docx
57:5	Exceptional model of learning	MV_Sorbonne.docx
68:11	Diverse learning community	MV_WakeForest.docx
69:20	Best students in the world	MV_KeioU.docx
71:1	Comprehensive learning institution	MV_UFlorida.docx
73:3	Experience-based learning	MV_UCinncinati.docx
75:25	In-class and out-of-class learning	MV_RKarlUniv.docx

In regard to emerging themes, the first focused on *qualities related to the learning process*. For instance, Harvard (2020b) described how "students embark on a journey of *intellectual transformation*" (3:4). The University of Cincinnati (Cincinnati, 2020a) emphasized "*experience-based learning*" (73:3) and Ruprecht Karl University Heidelberg (Ruprecht, 2020a) discussed "*in-class and out-of-class learning* (as) seamless and continuous" (75:25). Additionally, the *expansive disciplines of learning* were shared by Peking University (Peking, 2020) to include "basic and applied sciences, social sciences and the humanities, and sciences of medicine, management, and education" (56:9).

The second theme related to students with an *emphasis on diversity* such as at Wake Forest (2020) (68:11). The third theme added superlative language to connote *high quality learning models and strong students* such as Kyushu University (Kyushu, 2020) touting "superb learning environments" (45:11), Sorbonne University describing an "exceptional model of learning" (57:5), and Keio University (Keio, 2020b) proclaiming the "best students in the world come to learn (at Keio)" (69:20).

Research. Moving on to the Research Concept Code, discourse related to the generation of knowledge (Scott, 2006). As with Teaching, there were more sample In Vivo Codes to list relative to the Learning Code (see Figure 20).

Figure 20
In Vivo Coding Sample List – Research

Number	In Vivo Code	Document
5:5	Discovery is at the heart	MV_UWash.docx
7:1	Research-intensive	MV_KULeuven.docx
8:3	Research in science, engineering, medicine, and business	MV_ImperialCollegeLondon.docx
11:5	Globally prominent research university	MV_KAIST.docx
14:14	Research of the highest quality by faculty and students	MV_USoCal.docx
16:11	Advance the frontiers of knowledge	MV_Duke.docx
18:4	Model of the American research university	MV_JohnsHopkins.docx
19:10	Expand the boundaries of human knowledge	MV_UTokyo.docx
25:7	Hub for research	MV_Kyoto.docx
28:12	Define technological research university of 21st century	MV_GeorgiaTech.docx
39:11	Research strengthened by diverse staff and students	MV_Oxford.docx
41:1	Student-centered research university	MV_Tufts.docx
46:9	Researching deeply from basics to practice	MV_TokyoInstTech.docx
59:1	World-class research combining science, engineering and design	MV_DelftUTech.docx
62:1	Free and open pursuit of scholarship	MV_UZurich.docx
62:40	Outstanding researchers from throughout the world	MV_UZurich.docx
68:23	Academic vitality of a research university	MV_WakeForest.docx
75:6	Research university of international standing	MV_RKarlUniv.docx
78:21	Knowledge builds bridges	MV_DresdenUTech.docx
79:7	Research and creativity to enhance education	MV_UIowa.docx
80:9	Research within broader social context	MV_Ghent.docx
85:11	Global convergence research	MV_Gwangju.docx

The first emerging theme related to research as *knowledge creation and contribution to scholarship*. Duke University (Duke, 2020b) offered descriptive language to "advance the frontiers of knowledge" (16:11). The University of Tokyo (Tokyo, 2020b) used similarly expressive language to "expand the boundaries of human knowledge" (19:10).

The next themes shared elements of the General Mission Phraseology and Teaching Concept Codes. For instance, discourse also included *extensive disciplines focused on research for science and beyond*. ICL (2020a) listed "research in science, engineering, medicine, and business" (8:3) and the University of Iowa (Iowa, 2020) posited "research and creativity to enhance education" (79:7).

Additionally, *research on an international scale* was referenced with universities such as KU Leuven (2020b) describing themselves as a "research-intensive, internationally-oriented university" (7:1) and the Korea Advanced Institute of Science and Technology (KAIST, 2020) proclaimed themselves as a "globally prominent research university" (11:5).

The third theme is the *high quality, high stature nature of research* as evidenced with rhetoric such as "research of the highest quality by faculty and students" (14:14) from the

University of Southern California (USC, 2020a) and a "model of the American research university" (18:4) by Johns Hopkins (2020).

Service. The Service Concept Code connoted public service provided by the institution to the community as defined locally, regionally, nationally, and/or internationally. This Concept Code generated many In Vivo Codes with illuminating examples to impact society (see Figure 21).

Figure 21
In Vivo Coding Sample List – Service

Number	In Vivo Code	Document
1:11	Develop solutions for societal challenges	MV_Stanford.docx
6:2	Improve the human condition	MV_UTexasSystem.docx
13:23	Educated workforce for a competitive California economy	MV_UCalifSystem.docx
14:19	Public leadership and public service	MV_USoCal.docx
15:14	Land-grant legacy of public engagement	MV_Cornell.docx
19:5	Public responsibility	MV_UTokyo.docx
19:6	Pioneering spirit	MV_UTokyo.docx
27:32	Address health concerns for underserved, urban populations	MV_UIllinoisSystem.docx
46:10	Global sustainability for the natural world and human life	MV_TokyoInstTech.docx
48:3	Social, economic and cultural responsibility for nation and citizens	MV_SwissFedInstTech.docx
72:6	Collaboration with local, regional, national and international partners	MV_Leiden.docx
75:11	Responsibility to humanity, society, and nature	MV_RKarlUniv.docx
77:39	Serve the public through alumni, research, and medical care	MV_UVirginia.docx
81:4	Sustainable solutions for society, industry, and environment	MV_KarlsruheInstTech.docx
82:1	Nurture future leaders and useful citizens	MV_Zhejiang.docx
83:20	Bridge across Americas and world for inclusive engagement	MV_UMiami.docx

More broadly speaking, In Vivo Codes discussed *"solutions for societal challenges"* (1:11) as stated by Stanford (2020a), to *"improve the human condition"* (6:2) per The UT System (2020b), and a sense of *"public responsibility and a pioneering spirit"* (19:5, 19:6) as proclaimed by the University of Tokyo (Tokyo, 2020b). The Swiss Federal Institute of Technology (ETHZ, 2020) also recognized the more multi-faceted perspective of *"social, economic, and cultural responsibility"* (48:3).

More tangible service related to *fueling an educated workforce and generating human capital***.** For instance, the University of California System (UC System, 2020a) described "an educated workforce that keeps the California economy competitive" (14:19). Additionally, Cornell (2020b) singled out their *"land-grant legacy of public engagement"* (15:14). Multiple institutions mentioned *providing health care service to their communities* such as the University of Southern California (2020a) and the University of Virginia (2020). Other universities proclaimed their *commitment to sustainability and the environment* such as the Tokyo Institute of Technology (Tokyo Tech, 2020a), Ruprecht (2020a), and Karlsruhe Institute of Technology (Karlsruhe, 2020). One additional theme articulated *serving underserved populations* such as the

"urban, underserved populations" (27:32) identified by the University of Illinois System (Illinois System, 2020a).

Traditional Mission. The Concept Code for Traditional Mission included discourse acknowledging the institution's heritage and foundational institutional purpose. While not stated to the same degree as the aforementioned codes, there was notable rhetoric for these universities recognized for forward-thinking innovation (see Figure 22).

Figure 22
In Vivo Coding Sample List – Traditional Mission

Number	In Vivo Code	Document
9:1	Nation's first public university	MV_UNCChapelHill.docx
14:25	Rich historical accounts	MV_USoCal.docx
25:2	Historical commitment	MV_Kyoto.docx
30:2	Strong sense of tradition	MV_UErlangen.docx
39:13	Born of its history	MV_Oxford.docx
57:2	Rich heritage of Paris-Sorbonne University	MV_Sorbonne.docx
69:6	Legacy embodied within mission	MV_KeioU.docx
71:21	Building upon the experiences of past	MV_UFlorida.docx
74:4	Proud of 550-year history in center of Europe	MV_UFreiburg.docx
75:8	Firmly rooted in its history	MV_RKarlUniv.docx
77:50	Rededicate ourselves	MV_UVirginia.docx
77:51	Original, animating purpose of UVA – to serve	MV_UVirginia.docx
81:1	Traditions of renowned technical university	MV_KarlsruheInstTech.docx

The first emerging theme placed *importance on history, traditions, and legacy as central to institutional missions*. Examples of history rhetoric included Kyoto University (Kyoto, 2020a) speaking of "historical commitment" (25:2), USC (2020a) describing "rich historical accounts" (14:25), and Oxford (2020) proclaiming how they were "born of its history" (39:13). Karlsruhe (2020) acknowledged their "traditions of a renowned technical university" (81:1) and Keio (2020b) directly stated "legacy… embodied within its mission" (69:6).

The second theme *connected the legacy and original institutional missions to the institutional purpose moving forward*. UF (2020a) described "building upon the experiences of the past" (71:21) and the University of Virginia (UVA, 2020) stressed the need to "rededicate ourselves" (77:50) to the "original, animating purpose of UVA" (77:51). Of note, this theme was the first to appear more U.S.-centric.

Coding and Emerging Categories Related to Innovation

General Innovation Phraseology. The Concept Code for General Innovation Phraseology referred to the descriptive language related to innovation defined more broadly as "the wellspring of social and economic progress, and both a product and facilitator of the free exchange of ideas" (Poole & Van de Ven, 2004, p. xi). This sampling of fifteen In Vivo Codes are shown in Figure 23.

Figure 23
In Vivo Coding Sample List – General Innovation Phraseology

Number	In Vivo Code	Document
1:1	Discovery and creativity	MV_Stanford.docx
3:9	New ways of understanding	MV_Harvard.docx
6:5	Push the bounds of discovery	MV_UTexasSystem.docx
10:9	Creative experimentation of ideas and concepts	MV_Vanderbilt.docx
19:6	Pioneering spirit	MV_UTokyo.docx
21:12	Innovative mindset	MV_Osaka.docx
30:3	Minds and ideas of tomorrow	MV_UErlangen.docx
38:15	Future pioneers of society	MV_Sungkyunkwan.docx
40:11	Collaboration, innovation, technology and entrepreneurship	MV_UColoSystem.docx
48:11	Innovative force	MV_SwissFedInstTech.docx
49:3	Globally recognized at the forefront of innovation	MV_PurdueUSystem.docx
53:13	Competitive, entrepreneurial university	MV_UMunich.docx
74:47	Forefront of innovative forms of cooperation and new research fields	MV_UFreiburg.docx
81:17	Innovativeness and entrepreneurial culture	MV_KarlsruheInstTech.docx
85:14	Entrepreneurial leadership	MV_Gwangju.docx

The first emerging theme included *general terminology referring to innovation such as discovery, creativity, and entrepreneurship*. Stanford (2020a) used these general terms, "discovery and creativity" (1:1), in the first code identified for this institution. Vanderbilt University (Vanderbilt, 2020b) expounded by touting the "creative experimentation of ideas and concepts" (10:9). Several universities referenced entrepreneurship: "collaboration, innovation, technology, and entrepreneurship" (40:11) at the University of Colorado System (CU System, 2020a), "competitive, entrepreneurial university" (53:13) at the University of Munich (Munich, 2020), and "entrepreneurial leadership and robust collaborations with industry and academia" (85:14) at Gwangju University (2020).

The second emerging theme encompassed *innovative cultures and mindsets*. For instance, Karlsruhe (2020) discussed "innovativeness and entrepreneurial culture" (81:17). Osaka (2020) professed an "innovative mindset and the ability to create new values" (21:12). And, University of Erlangen (Erlangen, 2020a) spoke of the "minds and ideas of tomorrow" (30:3). Of note, Purdue University (2020) shared their *innovation at an international level* and touted their high quality by proclaiming they were "globally recognized and at the *forefront of innovation*" (74:47).

Innovation Within Mission. The Concept Code for Innovation Within Mission identified new ideas, approaches, and actions related to the common elements of university missions – teaching, research, and service (see Figure 24 for sampling of codes). There were less quotations identified for this Concept Code.

Figure 24
In Vivo Coding Sample List –Innovation Within Mission

Number	In Vivo Code	Document
1:5	New ways of fulfilling mission	MV_Stanford.docx
4:2	Pursuit of innovative knowledge	MV_UPenn.docx
38:13	Students will develop creative innovation	MV_Sungkyunkwan.docx
53:4	Innovation in fields of science	MV_UMunich.docx
62:41	International collaboration in research and teaching	MV_UZurich.docx
78:7	Combine tradition with innovation	MV_DresdenUTech.docx

The overarching emerging theme *recognized the role of innovation with the university mission* such as "new ways of fulfilling mission" (1:5) by Stanford University (2020a). Some universities emphasized innovation towards particular portions of the university's mission. Sungkyunkwan University (Sungkyunkwan, 2020) focused on *students and innovation* by stating that "students will unite and bring their passion and devotion to the development of creative innovation" (38:13). Munich (2020) described "*innovation in the fields of science* that promise *sustainable improvement in how people and society live*" (53:4) while the University of Zurich (Zurich, 2020b) discussed "international collaboration in research and teaching" (62:41).

Innovation Beyond Mission. The Concept Code for Innovation Beyond Mission identified new ideas, approaches, and actions not related to teaching, research, and service, the common elements of university missions. There were very few codes assigned in the mission statements (see Figure 25).

Figure 25
In Vivo Coding Sample List –Innovation Beyond Mission

Number	In Vivo Code	Document
44:21	Found growth-oriented startups	MV_TechUnivMunich.docx
81:16	Development of viable technologies and use in industry	MV_KarlsruheInstTech.docx

One theme emerged related to *industry startups and technological innovation* (see Figure 20). For instance, the Technical University of Munich (Munich, 2020a) described "growth-oriented startups" (44:21) and Karlsruhe (2020) proclaimed the "development of viable technologies and their use in industry" (81:16).

Before moving to Phase II, a faculty and peer review of the coding process played an imperative role to ensure the coding selection, operationalization of terms, and coding samples were sound.

Summary of Findings for Phase I

This first phase researched how universities articulated missions and innovation in their mission statements. Mission statements were quantitized to examine the total number of words and range at the global region and institutional levels. Asian university mission statements

utilized the fewest number of words while European HSIs logging in with the most and the United States in the middle. Over 1,200 In Vivo Codes were assigned with the majority attributed to the Mission category led by Service, Teaching, and Learning Concept Codes respectively. Innovation Concept Codes were primarily comprised of General Phraseology followed by Innovation Within Mission. Virtually no Innovation Beyond Mission Concept Codes were generated at the mission statement stage.

The majority of codes assigned fell into the Concept Codes for Mission as opposed to Innovation. Codes were distinguished for teaching (institutional- and teacher-focused) and learning (student-centered). Incidence of Research Codes was lower than expected in this initial frequency count in light of these research universities being recognized for innovation. Service was higher than expected largely due to the broadened definition of service to include volunteerism, community service, participation within discipline (outside home university), ideas of value, social criticism, social problem solving, and social activism (see Figure 26).

Figure 26

Summary of Emerging Themes – Mission

General Phraseology

- Intertwining and connectivity of widely accepted mission components for high research universities – teaching, research, and service
- Inclusion of the student-centered dimension of learning
- Development of the whole person
- Geographies served with varied scope
- Global collaboration
- Integration of traditional mission and innovation
- Create new values for the good of society
- Stature language and models for society

Teaching

- Preserve and disseminate knowledge
- Meet the needs of institutional constituencies
- Teaching designed for skill-related outcomes
- Quality and excellence of instruction
- Connection between educators and students
- Education made available for international students

Learning

- Qualities related to the learning process
- Intellectual transformation
- Experience-based learning
- In-class and out-of-class learning
- Expansive disciplines of learning
- Emphasis on diversity
- High quality learning models and strong students

Research

- Knowledge creation and contribution to scholarship
- Extensive disciplines focused on research for science and beyond
- Research on an international scale
- High quality, high stature nature of research

Service

- Solutions for societal challenges
- Improve the human condition
- Public responsibility and a pioneering spirit
- Social, economic, and cultural responsibility
- Fueling an educated workforce and generating human capital
- Land-great legacy of public engagement
- Providing health care service to their communities
- Commitment to sustainability and the environment
- Serving underserved populations

Tradition

- Importance of history, traditions, and legacy as central to institutional missions
- Connected the legacy and original institutional missions to the institutional purpose moving forward

Less incidence was noted for codes related to Innovation; most fell into the General Innovation Phraseology followed by Innovation Within Mission. Little evidence was noted for Innovation Beyond Mission In Vivo Codes (see Figure 27). It could be that Innovation Beyond Mission was examined more closely in strategic plans during Phase II.

Figure 27

Summary of Emerging Themes – Innovation

Innovation

General Phraseology

- General terminology referring to innovation such as discovery, creativity, and entrepreneurship
- Innovative cultures and mindsets
- Innovation at an international level
- Forefront of innovation

Within Mission

- Recognized the role of innovation with the university mission (instruction, research, and service)
- Students and innovation
- Innovation in the fields of science
- Sustainable improvement in how people and society live

Beyond Mission

- Industry startups and technological innovation

The detailed prevalence of Mission Concept Codes allowed for more operationalization for Phase II to assess innovation initiatives in the strategic plan and whether they fell within the mission categories (mission-driven) or outside of (mission drift).

Phase II: Strategic Plans and Institutional Mission Alignment

Excerpts from the following section were recently published by the Asian Conference on Education under the heading “Unpacking mission statements” (Montgomery, 2021).

The final phase allowed for examining the second research question: To what extent do innovation strategies align as stated in their strategic plans with their mission statements? To begin, descriptive statistics were analyzed at the institutional level to confirm universities selected for the second content analysis to assess strategic innovation and mission alignment.

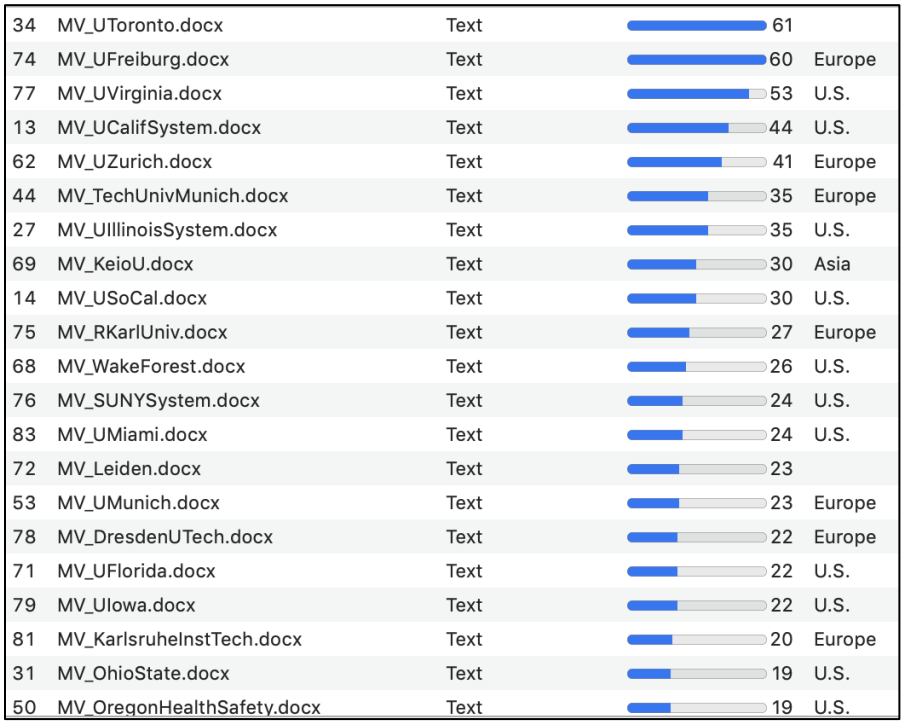
Overview of Ten Universities Selected

The unit of analysis for Phase II initially included eight international institutions preliminarily selected based on a quota sampling technique in which four universities were identified from the United States, two from Europe and two from Asia based on the geographic composition of the Top 100 (Reuters, 2018a) – Stanford University, Harvard University, The University of Texas System, KU Leuven, University of Tokyo, Georgia Institute of Technology, University of Oxford, and National University of Singapore. These universities represented a good dispersion of mission statement approaches as evidenced with Mission and Innovation In Vivo Codes. Two additional universities were added, University of Virginia and Technical University of Munich, based on the descriptive statistics analyzed at the institutional level in the following sections.

Total In Vivo Codes by Institution and Quadrant. To begin, the total In Vivo Codes were examined by institution and by quadrant. While the total number of words provided an initial vantage of the scope of discourse, reviewing the total number of codes could signal normative or distinguishing cues for the mission and innovation rhetoric. In the first quadrant, the number of codes per institution ranged from 19-61 comprised primarily of institutions in Europe and the U.S. with one in Asia and two in Canada (see Figure 28). The low representation of Asian institutions in this quadrant aligned with their lower word counts reviewed previously in Table 7. Also, of note, 15 of the 21 institutions were ranked 50 or higher of the 85 institutions measured.

Figure 28

International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of In Vivo Codes in ATLAS.ti – First Quadrant



34	MV_UToronto.docx	Text	61	
74	MV_UFreiburg.docx	Text	60	Europe
77	MV_UVirginia.docx	Text	53	U.S.
13	MV_UCalifSystem.docx	Text	44	U.S.
62	MV_UZurich.docx	Text	41	Europe
44	MV_TechUnivMunich.docx	Text	35	Europe
27	MV_UIllinoisSystem.docx	Text	35	U.S.
69	MV_KeioU.docx	Text	30	Asia
14	MV_USoCal.docx	Text	30	U.S.
75	MV_RKarlUniv.docx	Text	27	Europe
68	MV_WakeForest.docx	Text	26	U.S.
76	MV_SUNYSystem.docx	Text	24	U.S.
83	MV_UMiami.docx	Text	24	U.S.
72	MV_Leiden.docx	Text	23	
53	MV_UMunich.docx	Text	23	Europe
78	MV_DresdenUTech.docx	Text	22	Europe
71	MV_UFlorida.docx	Text	22	U.S.
79	MV_UIowa.docx	Text	22	U.S.
81	MV_KarlsruheInstTech.docx	Text	20	Europe
31	MV_OhioState.docx	Text	19	U.S.
50	MV_OregonHealthSafety.docx	Text	19	U.S.

In the second quadrant of In Vivo Codes, there was a more representative mix of continents: ten for the U.S., six for Europe, and five for Asia. This particular grouping included the highest university (Stanford) and lowest-ranked university (Gwangju) of those evaluated (see Figure 29).

Figure 29

International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of In Vivo Codes in ATLAS.ti – Second Quadrant

85	MV_Gwangju.docx	Text	18	Asia
39	MV_Oxford.docx	Text	18	Europe
1	MV_Stanford.docx	Text	18	U.S.
55	MV_Emory.docx	Text	18	U.S.
16	MV_Duke.docx	Text	17	U.S.
28	MV_GeorgiaTech.docx	Text	17	U.S.
38	MV_Sungkyunkwan.docx	Text	16	Asia
45	MV_Kyushu.docx	Text	15	Asia
47	MV_UnivCollegeLondon.docx	Text	15	Europe
21	MV_Osaka.docx	Text	14	Asia
8	MV_ImperialCollegeLondon.docx	Text	14	Europe
80	MV_Ghent.docx	Text	14	Europe
9	MV_UNCChapelHill.docx	Text	14	U.S.
15	MV_Cornell.docx	Text	14	U.S.
36	MV_UPittsburgh.docx	Text	14	U.S.
11	MV_KAIST.docx	Text	13	Asia
30	MV_UErlangen.docx	Text	13	Europe
52	MV_IndianaUSystem.docx	Text	13	U.S.
63	MV_CaseReserve.docx	Text	13	U.S.
48	MV_SwissFedInstTech.docx	Text	12	Europe
24	MV_UWiscSystem.docx	Text	12	U.S.

For the third quadrant, the U.S. comprised the majority of institutions with 14 of the 21 institutions while Asia listed six and Europe just one. Only five universities were ranked higher than 50 (see Figure 30).

Figure 30

International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of In Vivo Codes in ATLAS.ti – Third Quadrant

40	MV_UColoSystem.docx	Text	12	U.S.
61	MV_Princeton.docx	Text	12	U.S.
35	MV_Tohoku.docx	Text	11	Asia
59	MV_DelftUTech.docx	Text	11	Europe
6	MV_UTexasSystem.docx	Text	11	U.S.
18	MV_JohnsHopkins.docx	Text	11	U.S.
73	MV_UCinncinati.docx	Text	11	U.S.
19	MV_UTokyo.docx	Text	10	Asia
46	MV_TokyoInstTech.docx	Text	10	Asia
56	MV_PekingU.docx	Text	10	Asia
82	MV_Zhejiang.docx	Text	10	Asia
2	MV_MIT.docx	Text	10	U.S.
3	MV_Harvard.docx	Text	10	U.S.
20	MV_CalTech.docx	Text	10	U.S.
25	MV_Kyoto.docx	Text	9	Asia
10	MV_Vanderbilt.docx	Text	9	U.S.
32	MV_Columbia.docx	Text	9	U.S.
84	MV_ASU.docx	Text	9	U.S.
37	MV_Yale.docx	Text	8	U.S.
41	MV_Tufts.docx	Text	8	U.S.
42	MV_Baylor.docx	Text	8	U.S.

For the final quadrant, there was good representation again from all continents - the U.S. with eight, Europe with seven, and Asia with five. As with the total word count, Asia listed some of the smallest code frequencies with NUS (2018) and Yonsei University (Yonsei, 2020) at four codes each. This entire quadrant ranged from three to eight codes (see Figure 31).

Figure 31

International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of In Vivo Codes in ATLAS.ti – Fourth Quadrant

65	MV_Rutgers.docx	Text	8	U.S.
33	MV_SeoulNatl.docx	Text	7	Asia
70	MV_KoreaU.docx	Text	7	Asia
7	MV_KULeuven.docx	Text	7	Europe
4	MV_UPenn.docx	Text	7	U.S.
12	MV_EPFL.docx	Text	6	Europe
57	MV_Sorbonne.docx	Text	6	Europe
67	MV_JohannesGutenberg.docx	Text	6	Europe
5	MV_UWash.docx	Text	6	U.S.
29	MV_UUtah.docx	Text	6	U.S.
58	MV_UBritishColumbia.docx	Text	5	
43	MV_Tsinghua.docx	Text	5	Asia
17	MV_Cambridge.docx	Text	5	Europe
51	MV_UManchester.docx	Text	5	Europe
54	MV_TechUDenmark.docx	Text	5	Europe
22	MV_UMichSystem.docx	Text	5	U.S.
23	MV_Northwestern.docx	Text	5	U.S.
49	MV_PurdueUSystem.docx	Text	5	U.S.
60	MV_NUSingapore.docx	Text	4	Asia
64	MV_Yonsei.docx	Text	4	Asia
66	MV_BostonU.docx	Text	3	U.S.

In Vivo Code Frequencies by Continent. The following figures show the incidence of quotations ranked in terms of frequency by continent as shown in the ATLAS.ti software.

The United States comprised 42 of the 85 institutions with publicly availably mission statements. Institutions ranged from the highest number of codes, UVA (2020) with 53, to the lowest, Boston University (BU, 2020b) with three (also the lowest of all institutions worldwide). Also, of note, Stanford (2020a) equated to 18 codes, Georgia Institute of Technology (Georgia Tech, 2020) with 17, The UT System (2020b) with 11, and Harvard (2020b) with 10 (see Figure 32).

Figure 32

International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of Codes in ATLAS.ti – U.S.

77	MV_UVirginia.docx	Text	53	U.S.
13	MV_UCalifSystem.docx	Text	44	U.S.
27	MV_UIllinoisSystem.docx	Text	35	U.S.
14	MV_USoCal.docx	Text	30	U.S.
68	MV_WakeForest.docx	Text	26	U.S.
76	MV_SUNYSystem.docx	Text	24	U.S.
83	MV_UMiami.docx	Text	24	U.S.
71	MV_UFlorida.docx	Text	22	U.S.
79	MV_UIowa.docx	Text	22	U.S.
31	MV_OhioState.docx	Text	19	U.S.
50	MV_OregonHealthSafety.docx	Text	19	U.S.
1	MV_Stanford.docx	Text	18	U.S.
55	MV_Emory.docx	Text	18	U.S.
16	MV_Duke.docx	Text	17	U.S.
28	MV_GeorgiaTech.docx	Text	17	U.S.
9	MV_UNCChapelHill.docx	Text	14	U.S.
15	MV_Cornell.docx	Text	14	U.S.
36	MV_UPittsburgh.docx	Text	14	U.S.
52	MV_IndianaUSystem.docx	Text	13	U.S.
63	MV_CaseReserve.docx	Text	13	U.S.
24	MV_UWiscSystem.docx	Text	12	U.S.
40	MV_UColoSystem.docx	Text	12	U.S.
61	MV_Princeton.docx	Text	12	U.S.
6	MV_UTexasSystem.docx	Text	11	U.S.
18	MV_JohnsHopkins.docx	Text	11	U.S.
73	MV_UCinncinati.docx	Text	11	U.S.
2	MV_MIT.docx	Text	10	U.S.
3	MV_Harvard.docx	Text	10	U.S.
20	MV_CalTech.docx	Text	10	U.S.
10	MV_Vanderbilt.docx	Text	9	U.S.
32	MV_Columbia.docx	Text	9	U.S.
84	MV_ASU.docx	Text	9	U.S.
37	MV_Yale.docx	Text	8	U.S.
41	MV_Tufts.docx	Text	8	U.S.
42	MV_Baylor.docx	Text	8	U.S.
65	MV_Rutgers.docx	Text	8	U.S.
4	MV_UPenn.docx	Text	7	U.S.
5	MV_UWash.docx	Text	6	U.S.
29	MV_UUtah.docx	Text	6	U.S.
22	MV_UMichSystem.docx	Text	5	U.S.
23	MV_Northwestern.docx	Text	5	U.S.
49	MV_PurdueUSystem.docx	Text	5	U.S.
66	MV_BostonU.docx	Text	3	U.S.

Europe comprised 21 of the 85 institutions with publicly availably mission statements. Institutions ranged from the highest number of codes, Freiburg (2020) with 60 (also the higher of all institutions globally), to three institutions with lowest score of five to include the University of Cambridge (Cambridge, 2020), the University of Manchester (Manchester, 2020a) and the Technical University of Denmark (Denmark, 2020a). Also, of note, the Technical University of Munich (Munich, 2020a) totaled 23 codes, Oxford (2020) with 18, and KU Leuven (2020b) with seven (see Figure 33).

Figure 33

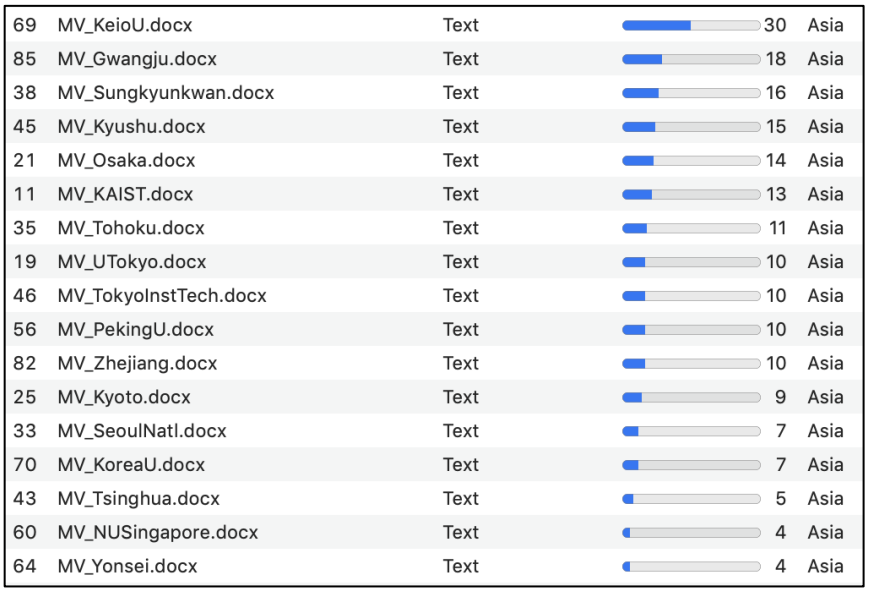
International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of Codes in ATLAS.ti – Europe

74	MV_UFreiburg.docx	Text	60	Europe
62	MV_UZurich.docx	Text	41	Europe
44	MV_TechUnivMunich.docx	Text	35	Europe
75	MV_RKarlUniv.docx	Text	27	Europe
53	MV_UMunich.docx	Text	23	Europe
78	MV_DresdenUTech.docx	Text	22	Europe
81	MV_KarlsruheInstTech.docx	Text	20	Europe
39	MV_Oxford.docx	Text	18	Europe
47	MV_UnivCollegeLondon.docx	Text	15	Europe
8	MV_ImperialCollegeLondon.docx	Text	14	Europe
80	MV_Ghent.docx	Text	14	Europe
30	MV_UErlangen.docx	Text	13	Europe
48	MV_SwissFedInstTech.docx	Text	12	Europe
59	MV_DelftUTech.docx	Text	11	Europe
7	MV_KULeuven.docx	Text	7	Europe
12	MV_EPFL.docx	Text	6	Europe
57	MV_Sorbonne.docx	Text	6	Europe
67	MV_JohannesGutenberg.docx	Text	6	Europe
17	MV_Cambridge.docx	Text	5	Europe
51	MV_UManchester.docx	Text	5	Europe
54	MV_TechUDenmark.docx	Text	5	Europe

Asia contributed 17 of the 85 institutions with publicly available mission statements. Keio (2020b) held the highest number of codes at 30. Yet, virtually all Asian universities accounted for less than half of Keio such as Osaka (2020) with 14, Korea (2020) with seven, NUS (2018) and Yonsei (2020) each with four (see Figure 34).

Figure 34

International Institutions Recognized for Innovation (Reuters, 2018a) – Frequency of Codes in ATLAS.ti – Asia



69	MV_KeioU.docx	Text	30	Asia
85	MV_Gwangju.docx	Text	18	Asia
38	MV_Sungkyunkwan.docx	Text	16	Asia
45	MV_Kyushu.docx	Text	15	Asia
21	MV_Osaka.docx	Text	14	Asia
11	MV_KAIST.docx	Text	13	Asia
35	MV_Tohoku.docx	Text	11	Asia
19	MV_UTokyo.docx	Text	10	Asia
46	MV_TokyoInstTech.docx	Text	10	Asia
56	MV_PekingU.docx	Text	10	Asia
82	MV_Zhejiang.docx	Text	10	Asia
25	MV_Kyoto.docx	Text	9	Asia
33	MV_SeoulNatl.docx	Text	7	Asia
70	MV_KoreaU.docx	Text	7	Asia
43	MV_Tsinghua.docx	Text	5	Asia
60	MV_NUSingapore.docx	Text	4	Asia
64	MV_Yonsei.docx	Text	4	Asia

Of the eight universities, three fell within the second and third quartiles and two in the fourth quartile. However, the one quadrant not represented by the preliminary university list was in the first quartile. The first quadrant provided the most expansive mission statements and codes identified, thus, the University of Virginia (UVA, 2020) and the Technical University of Munich (Munich, 2020a) were added to the university selection list for the Phase II analysis to ensure representation of more extensive mission statement rhetoric. (see Table 8).

Table 8

Phase II Institutions – Frequency of In Vivo Code Rankings by Quadrant

1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
3 – University of Virginia	23 – Oxford	47 – The UT System	67 – KU Leuven
6 – Technical University of Munich	24 – Stanford	50 – University of Tokyo	82 – National University of Singapore
	27 – Georgia Tech	55 – Harvard	

Note: No universities preliminarily selected in first quartile. Numbers reflect ranking based on the Top 100 (Reuters, 2018a) with publicly available documents available, n=85.

In looking at the universities from a normative standpoint, six of the ten selected institutions exhibited a higher incidence of Mission-related Codes relative to the Top 100 mean figure. Interestingly, the highest variance occurred with KU Leuven (2020b) exhibiting no innovation rhetoric in their mission statement while NUS (2018) with the majority of their codes communicating innovation. Two institutions, UVA (2020) and The UT System (2020b) hovered close to the mean suggesting more normative, isomorphic behavior (see Table 9).

Table 9
Phase II Institutions – Composition of Mission Versus Innovation Codes

		Codes	
University (Top 100 Rank)	Continent	Mission	Innovation
KU Leuven (7)	U.S.	100%	0%
Harvard University (3)	U.S.	89%	11%
University of Tokyo (20)	Asia	89%	11%
University of Oxford (40)	Europe	87%	13%
University of Virginia (85)	U.S.	83%	17%
The University of Texas System (6)	U.S.	82%	18%
Top 85 Mean		**81%**	**19%**
Technical University of Munich (45)	Europe	61%	39%
Georgia Institute of Technology (29)	U.S.	60%	40%
Stanford University (1)	U.S.	47%	53%
National University of Singapore (63)	Asia	34%	66%

In an effort to close the loop, the universities selected for Phase II were examined based on the total number of words in their mission statements. With the mean score of 205, only three universities exceeded that number with the top two significantly higher, UVA with 948 words and Munich with 906 words. Those universities offered important data in Phase II within the total exploration of mission statements and the strategic use of alignment relative to the other institutions ranging from 14 words to 251. On the other end of the spectrum, NUS also offered some interesting perspective. The balance of seven universities ranged from 91 to 251 words and were investigated for isomorphic tendencies versus more distinctive rhetoric (see Table 10).

Table 10
Phase II Institutions – Mission Statement Total Words

University	Continent	Mission Statement Total Words
University of Virginia (85)	U.S.	948
Technical University of Munich (45)	Europe	906
Stanford University (1)	U.S.	251
Top 85 Mean		**205**
University of Oxford (40)	Europe	191
Harvard (3)	U.S.	179
Georgia Tech (29)	U.S.	113
KU Leuven (7)	Europe	93
University of Tokyo (20)	Asia	92
The University of Texas System (6)	U.S.	91
National University of Singapore (63)	Asia	14

With the confirmation of ten universities, Phase II engaged in a content analysis for each institution. Before doing so, a brief overview of each university provided general context to include geographic, historical, financial, and institutional statistics.

The first section of data provided a mission statement summary to include the total number of words, the percentage of Mission versus Innovation Codes, and a sampling of In Vivo Codes. From there, summations from ATLAS.ti documents of each institution's total In Vivo Codes for Mission and Innovation categories were listed with accompanying narrative. The inclusion of Mission Codes was imperative to understanding particular nuances within each institution. The next section introduced a strategic plan overview followed by In Vivo Codes. Of note, this stage focused solely on the Innovation category of In Vivo Codes to assess the exploration of strategic innovation and mission alignment. The final section examined evidence of mission-driven and potentially mission drift rhetoric for each institution. The inclusion of the word "potential" with mission drift incidence was intentional to acknowledge the need for further unpacking of mission statements; the determination could be interpreted differently for various stakeholders and across institutions.

Stanford University

Institutional Overview. Stanford University (Stanford) was the highest ranked university in the world for innovation (Reuters, 2018a), founded in 1891 as a private university on the west coast of the U.S. with 17,534 students. Interestingly, Stanford did not rise to research prominence until decades after its founding although a strong business acumen was at the heart of their inaugural presidential search (Stanford University Libraries, 2016). According to Stanford (2016), its original innovative foundations centered on opening its doors to a coed student body and providing tuition-free access to draw elite and working-class students alike. Stanford (2016), adopting the Germanic model in the 1930s, began to pursue research and innovation by forming university-industry relationships ultimately paving the way for Silicon Valley. Stanford is one of the most resourced universities internationally with over $475 million in revenues of which the majority was generated by resources beyond tuition, government funding, gifts and grants (NCES, 2017).

Mission Statement Summary. The Stanford (2020a) mission statement was focused on a more visionary perspective with the traditional mission of research, education, and service embedded within which was expected given their premiere status as the international university most recognized for innovation. In fact, they emphasized Innovation Concept Codes at 53% versus the institutional mean at 19%. Their total number of words at 251 were closer to the institutional mean at 205 (see Figure 35).

Figure 35
Stanford University – Mission Statement Summary

Stanford University Mission Statement Summary
Total Words: 251
Mission vs. Innovation Concept Codes: 47% vs. 53%
Sample In Vivo Codes:
Discovery and creativity
Accelerating impact
Transforming education

The In Vivo Codes provided the operationalization of the mission statement to examine strategic plan language to assess alignment. The Stanford (2020a) mission statement generated 17 codes. Stanford emphasized strong evidence of traditional mission and innovation within their mission statement rhetoric such as finding "new ways of fulfilling mission" (1:5). They included a good deal of innovation phraseology such as "discovery and creativity" (1:1) and "transforming" (1:2, 1:8) (see Figure 36).

Figure 36
Stanford University – Mission Statement In Vivo Codes

Number	In Vivo Code
1:1	Discovery and creativity
1:2	Transforming education
1:3	Since its founding
1:4	University's mission
1:5	New ways of fulfilling mission
1:6	Research, education, and service
1:7	Rapid change in world
1:8	Transforming the human experience
1:9	Fundamental questions for humanity
1:10	Rapidly changing world
1:11	Develop solutions for societal challenges
1:12	Response to these challenges
1:13	New vision for the university
1:14	Advance academic and research mission
1:15	Strengthen communities on campus and beyond
1:16	Disciplinary and interdisciplinary strengths
1:17	Accelerate purposeful impact in the world

Strategic Plan Content Analysis. The Stanford (2020b) strategic plan was a work-in-progress in which an overview was provided on their website with more details expected in late 2020/early 2021. The Stanford strategic plan generated 19 codes. As expected, much of the strategic plan language was more General Innovation Phraseology such as "accelerate translation of breakthroughs" (1:18) and "craft solutions and policies for challenging societal issues" (1:21). There were several more specific examples directly related to mission such as with instruction

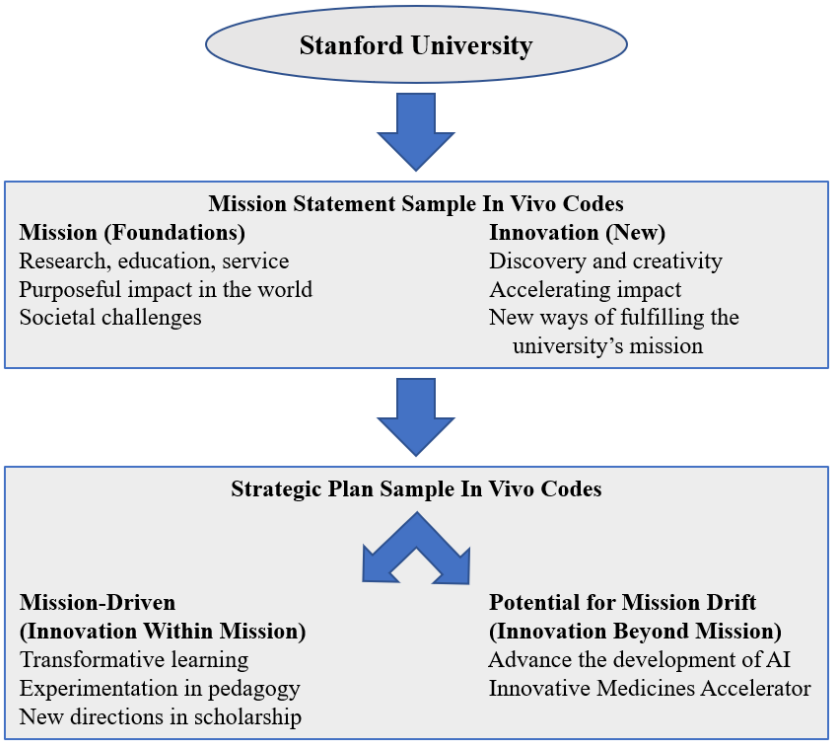
and “transformative learning” (1:36) and “experimentation in pedagogy” (1:26). Additionally, there was reference to innovative research as with “new directions in fundamental and applied scholarship” (1:34). In addition, there were specific initiatives mentioned such as the “development of AI [artificial intelligence] and tackle ethical and societal impacts” (1:19), “Innovative Medicines Accelerator” (1:30), and “Social X-Change” (1:33) (see Figure 37).

Figure 37
Stanford University – Strategic Plan In Vivo Codes

Number	In Vivo Code
1:18	Accelerate translation of breakthroughs
1:19	Development of AI and tackle ethical and societal impacts
1:20	Build creative confidence
1:21	Craft solutions for challenging societal issues
1:22	Craft policies for economic opportunity and ineffective institutions
1:23	Culture of strategic risk-taking
1:24	Exploration and shared intellectual experience
1:25	Evaluate new methods of teaching
1:26	Experimentation in pedagogy
1:27	Societal and ethical consequences of scientific advances
1:28	Flexible on-ramps to discipline
1:29	Our role in the technology revolution
1:30	Innovative Medicines Accelerator
1:31	Innovative therapies and cures
1:32	Push the frontiers of social science
1:33	Social X-Change
1:34	New directions in fundamental and applied scholarship
1:35	Resources and data for faculty to create new approaches
1:36	Transformative learning

Mission – Innovation Alignment. Stanford exhibited clear mission-driven evidence for their strategic use of innovation in fusing teaching and learning with innovation utilizing rhetoric such as “experimentation in pedagogy” (1:26) and “new directions in fundamental and applied scholarship” (1:34). The area of potential mission drift was evidenced with initiatives that could also be developed in the private sector such as the development of AI (1:19) and their “Innovative Medicines Accelerator” (1:30). Given Stanford’s position as the most highly ranked university in the world, their deep resources, and strong ties to industry with Silicon Valley, this rhetoric may be in line with their institutional mission (see Figure 38).

Figure 38
Stanford University – Mission-Strategic Innovation Alignment



Harvard University

Institutional Overview. Harvard University (Harvard) was the third-highest ranked university in the world for innovation (Reuters, 2018a), the first American university founded in 1636, a private university in the northeast of the U.S. with 31,120 students. As the first of the Colonial colleges founded in the United States, Harvard is the oldest "corporation" in the United States, founded in 1636 (Thelin, 2019).

The Colonial colleges, like Harvard, built on the foundations of Oxford and Cambridge yet embraced new ideas, or innovations, such as combining instruction with the business of issuing degrees and certifications, and a more decentralized approach relative to English universities (Thelin, 2019). Harvard and MIT have also been recognized for collaborating with the private sector and Route 128 in Boston (Crow & Dabars, 2015).

Mission Statement Summary. The Harvard (2020b) mission statement emphasized Mission Concept Codes at 89% which is higher than the institutional mean at 81%. They communicated specific language related to a liberal arts curriculum with some reference to innovation (e.g., transforming, new ideas) without explicitly stating. Their total number of words of 179 were less than the institutional mean at 205 but still relatively close (see Figure 39).

Figure 39
Harvard University – Mission Statement Summary

Harvard University Mission Statement Summary
Total Words: 179
Mission vs. Innovation Concept Codes: 89% vs. 11%
Sample In Vivo Codes:
Standard for residential liberal arts and sciences education
Experience an unparalleled educational journey
Intellectually and socially transformative

The Harvard mission statement (2020b) generated ten codes. Harvard emphasized a traditional liberal arts education from several vantage points such as the "transformative power of a liberal arts education" (3:2) and the "standard for residential liberal arts and sciences education" (3:7). They also stressed service components of their mission to "educate citizen leaders for society" (3:1). Incidence of innovation language was limited and used General Innovation Phraseology such as "transformative" (3:2, 3:4) and "new ways of understanding" (3:9) (see Figure 40).

Figure 40
Harvard University - Mission Statement In Vivo Codes

Number	In Vivo Code
3:1	Educate citizen-leaders for society
3:2	Transformative power of liberal arts education
3:3	Classroom with exposure to new ideas
3:4	Intellectual transformation is deepened
3:5	Conditions for social transformation are created
3:6	How to best serve the world
3:7	Standard for residential liberal arts and sciences education
3:8	Educational journey
3:9	New ways of understanding
3:10	New ways of knowing

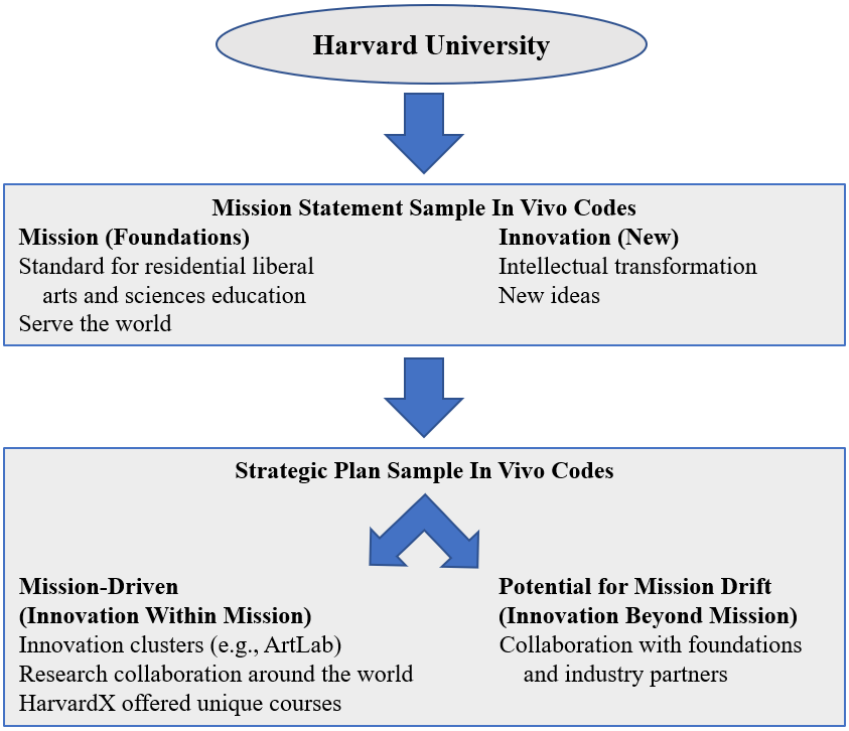
Strategic Plan Content Analysis. Harvard (2020b) adopted a more loosely coupled approach with strategic plans listed by schools and departments as opposed to at the institutional level. The most relevant institutional document to extract strategic priorities was the annual financial report of which generated 20 codes. In contrast to the broad nature of innovation rhetoric in the mission statement, the plan detailed more specific strategic innovation initiatives. For instance, an "'Innovation' cluster comprised of ArtLab, iLab, Pagliuca Lab, and Launch Lab" (3:13), "HarvardX offering online courses available globally" (3:24), and science buildings such as the "Allston Engineering Complex and District Energy Facility" (3:12). Collaboration was also mentioned with partners across the university and with foundation industry partners (3:16, 3:17). These specific details reinforced why Harvard would be ranked third internationally for innovation despite little reference to innovation in the mission statement (see Figure 41).

Figure 41
Harvard University – Strategic Plan In Vivo Codes

Number	In Vivo Code
3:11	Global team of astronomers led by Harvard scientists
3:12	Allston Engineering Complex and District Energy Facility
3:13	"Innovation" cluster that includes ArtLab, iLab, Pagliuca Life Lab, and Launch Lab
3:14	Boundary-breaking arts programming and research
3:15	Collaborate with colleagues across the University
3:16	Collaborate with foundations and industry partners
3:17	Collaboration with researchers and colleagues around world
3:18	Interdisciplinary center for creativity and innovation
3:19	Donor contributions enable groundbreaking discoveries
3:20	Experimental performance space
3:21	First-ever visible image of a black hole
3:22	Strong partnerships with non-federal sources
3:23	Expand human knowledge through innovation
3:24	HarvardX offered unique courses
3:25	Online courses for people around world
3:26	Innovative collection of free online learning activities
3:27	Test Einstein's theory of gravity
3:28	Remarkable breakthroughs and discoveries
3:29	Research centers on campus and around world
3:30	Research-critical priorities like developing clean energy

Mission Drift/Alignment. Much of Harvard's innovation aligned with their mission in terms of education and research. For instance, they referenced several initiatives worldwide such as HarvardX online courses available to international students and Harvard researchers collaborating with peers globally. Like Stanford, the one area that might blur the lines and teeter towards initiatives beyond mission involves collaborating outside the core mission areas such as with foundations and industry. These strategies may not be a mission drift issue for the globally-minded, resource-rich nature of Harvard, but could be for institutions aspiring to the likes of Harvard by sacrificing the quality and resources of their core areas (see Figure 42).

Figure 42
Harvard University – Mission-Strategic Innovation Alignment



The University of Texas System

Institutional Overview. The University of Texas System (The UT System) was ranked sixth in the world for innovation (Reuters, 2018a), founded in 1883, a public university system in the southwest of the U.S. with 235,000 students. In the 1800s, state universities, like The UT System, began to emerge along with private universities with many on the Top 100 list (Reuters, 2018a). The UT System has grown over the years to comprise fourteen campuses in a highly populated American state with eight universities and six health care institutions. Reuters (2018a) reported the universities collectively given the manner in which innovation components were reported. The UT System (2020) emphasized human capital and an international, global reference in addition to serving the state of Texas.

Mission Statement Summary. The UT System (2020b) mission statement emphasized Mission Concept Codes at 82%, relatively on par with the institutional mean at 81%. Their total number of words at 91 were significantly less than the institutional mean at 205 (see Figure 43).

Figure 43
The University of Texas System – Mission Statement Summary

The University of Texas System **Mission Statement Summary**
Total Words: 91
Mission vs. Innovation Concept Codes: 82% vs. 18%
Sample In Vivo Codes:
Improve the human condition
Push the bounds of discovery
Shape public policy for common good
High quality human capital

The UT System (2020b) mission statement generated eleven codes. While they mentioned the effort to "advance education" (6:4), most rhetoric focused on areas of service. For instance, they discussed the need to "improve the human condition" (6:2), "cultivate high quality human capital" (6:7), and generate "solutions for state, nation, and world" (6:9). Like Harvard, innovation language appeared limited and utilized general phraseology such as "push the bounds of discovery" (6:5) (see Figure 44).

Figure 44
The University of Texas System – Mission Statement In Vivo Codes

Number	**In Vivo Code**
6:1	Mission of The University of Texas System
6:2	Improve the human condition
6:3	Size, diversity, and quality
6:4	Advance education
6:5	Push the bounds of discovery
6:6	Shape public policy for common good
6:7	High quality human capital
6:8	Sense of service and ability to lead
6:9	Solutions for state, nation, and world
6:10	Global impact
6:11	State university system

Strategic Plan Content Analysis. The UT System strategic plan was authored by Chancellor William H. McRaven in 2015 entitled *Leading in a Complex World: Vision and Quantum Leaps*. Interestingly, the plan was written in first-person narrative to signal the Chancellor's personal commitment to this plan and generated 14 In Vivo Codes. Innovation Within Mission Codes referenced collaboration efforts as with "collaborative research projects" (6:14) and "institutional collaboration throughout health care enterprise" (6:18). Collaboration also extended beyond institutional walls to "build partnerships with industry" (6:13) and "incentivize partnerships and demand scientific cooperation" (6:16). Additionally, they emphasized the educational curriculum of "cutting-edge science ongoing at UT institutions" (6:21) (see Figure 45).

Figure 45

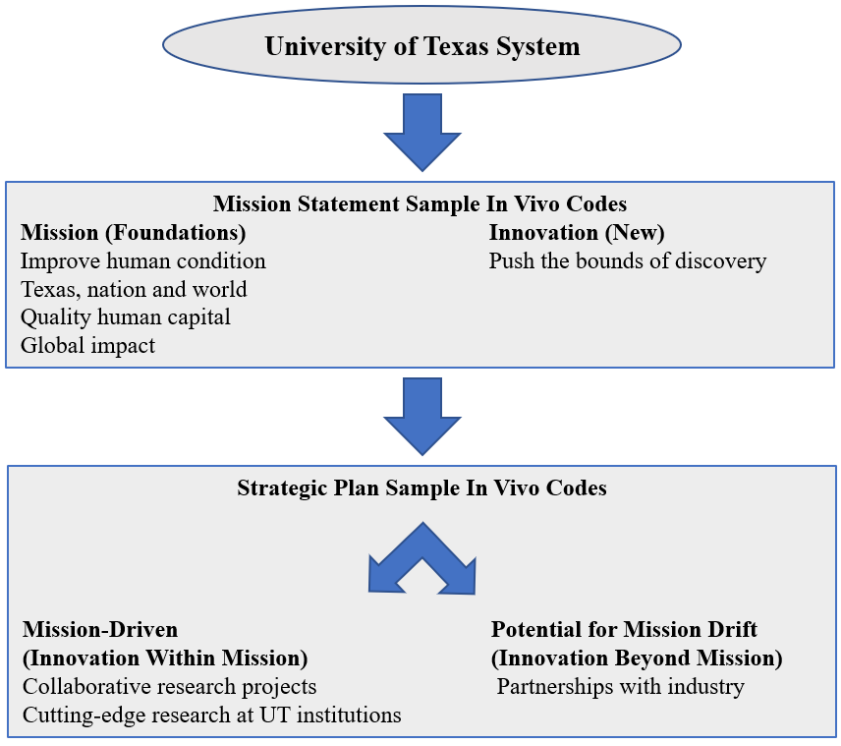
The University of Texas System – Strategic Plan In Vivo Codes

Number	In Vivo Code
6:12	Quantum Leaps
6:13	Build partnerships with industry
6:14	Collaborative research projects
6:15	Collaborating in pursuit of common goal
6:16	Incentive partnerships and demand scientific cooperation
6:17	Effort akin to Manhattan Project
6:18	Incentivize institutional collaboration throughout health care enterprise
6:19	Leading the brain health revolution
6:20	Leverage into international value
6:21	Cutting-edge science ongoing at UT institutions
6:22	Centers, institutes and labs focusing on national security
6:23	Greatest scientific minds at geographically dispersed sites

Mission – Innovation Alignment. The UT System emphasized their service to society on state, national, and international levels. When reviewing the UT strategic plan, mission-driven innovation was most closely tied to innovative research initiatives through collaboration in a "cutting-edge" manner. The theme continuing to emerge involves partnerships beyond academe within industry (see Figure 46).

Figure 46

The University of Texas System – Mission-Strategic Innovation Alignment



KU Leuven

Institutional Overview. KU Leuven was ranked seventh in the world for innovation (Reuters, 2018a), founded in 1425, a private Catholic university (receiving public funding) in Belgium, Europe with 56,351 students. KU Leuven was not only one of the oldest medieval universities on the Top 100 list, but also the top-ranked European university. These factors add to the dimension of universities spotlighted; the traditional mission and intersectionality with their highly regarded innovation initiatives is examined further.

Mission Statement Summary. Of note, KU Leuven (2020b) did not publish a mission statement but did reference mission-related content in their policy plans. KU Leuven solely emphasized Mission Concept Codes at 100% with no innovation referenced in their mission statement. Their total number of words at 93 are significantly less than the institutional mean at 205 (see Figure 47).

Figure 47
KU Leuven – Mission Statement Summary

KU Leuven Mission Statement Summary	
Total Words:	93
Mission vs. Innovation Concept Codes:	100% vs. 0%
Sample In Vivo Codes:	
Research-intensive	
Internationally-oriented university	
Learning in itself	
Focus on the individual student	

The KU Leuven mission statement generated seven codes. The mission statement focused on education and research with no immediate reference to service. In regard to education, they discussed "study programmes" (7:6) and the student-centered nature of "academic learning in itself" (7:5). Even more reference to research to include "research-intensive" (7:1) and research types, "fundamental, basic and applied scientific research" (7:7). Of important note, KU Leuven did not express any evidence of innovation in their mission statement (see Figure 48).

Figure 48
KU Leuven – Mission Statement In Vivo Codes

Number	In Vivo Code
7:1	Research-intensive
7:2	Internationally-oriented
7:3	Four central dimensions in education
7:4	Focus on the individual
7:5	Academic learning in itself
7:6	Study programmes
7:7	Fundamental, basic, and applied scientific research

Strategic Plan Content Analysis. As with mission rhetoric, strategic plan language was sourced from their policy plans which resembled strategic plan content in the United States. The KU Leuven (2020a) strategic plan generated 16 codes. A lot of their strategic use of innovation included technology. For instance, they discussed "MOOCs (Massive Open Online Courses) with more that can be done" (7:13). Like Harvard, KU Leuven identified a laboratory, "Leuven Learning Lab for didactic and educational technology" (7:14). They also emphasized the importance of "interdisciplinary dialogue" (7:19) and international "collaboration with edX.org, the digital platform of MIT and Harvard" (7:8) (see Figure 49).

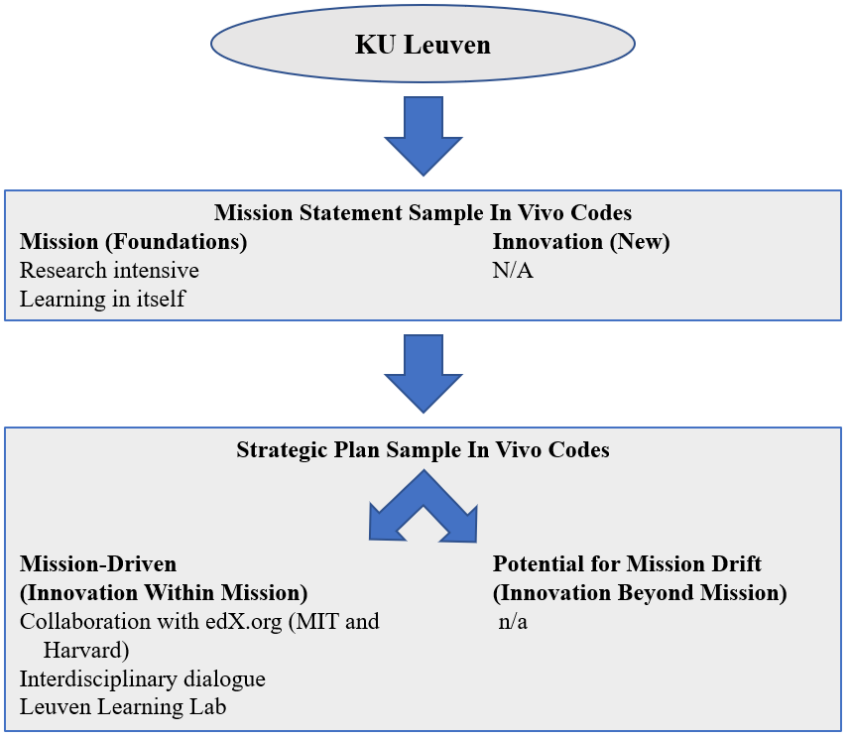
Figure 49

KU Leuven – Strategic Plan In Vivo Codes

Number	In Vivo Code
7:8	Collaboration with edX.org, the digital platform of MIT and Harvard
7:9	Facilitates collaborative learning
7:10	Artificial intelligence or augmented reality
7:11	Incorporating technology in university education
7:12	Innovative education and technology
7:13	Existing MOOCs with more that can be done
7:14	Leuven Learning Lab for didactic and educational technology
7:15	Support trainings on newest technology
7:16	New technologies implemented in practice
7:17	Online learning and examination platform
7:18	Trustworthy IT foundation
7:19	Interdisciplinary dialogue
7:20	Location for educational support staff within the LLL
7:21	Toledo full-fledged learning platform
7:22	Educational technology
7:23	Widen international reach through MicroMasters and MOOCs

Mission – Innovation Alignment. KU Leuven focused on education and learning in their mission. The policy plan illuminated strategic innovation related primarily to technological advances in those two areas. There was no evidence of potential mission drift (see Figure 50).

Figure 50
KU Leuven – Mission-Strategic Innovation Alignment



University of Tokyo

Institutional Overview. The University of Tokyo (Tokyo) was ranked twentieth in the world for innovation (Reuters, 2018a), founded in 1877, a public Japanese university in Asia with 28,253 students. Tokyo (1877) was influenced by the German model of higher education focusing on technical, utilitarian education (Henderson, 1970).

Mission Statement Summary. Like Harvard, the Tokyo (2020b) mission statement emphasized Mission Concept Codes at 89% which is higher than the institutional mean at 81%. However, their total number of words at 92 were significantly less than Harvard's 179 words and the institutional mean at 205; in fact, their total number of words more closely mirrored The UT System and KU Leuven (see Figure 51).

Figure 51
University of Tokyo – Mission Statement Summary

University of Tokyo Mission Statement Summary
Total Words: 92
Mission vs. Innovation Concept Codes: 89% vs. 11%
Sample In Vivo Codes:
World-class platform for research and education
Strong sense of public responsibility
Pioneering spirit
Expand the boundaries of human knowledge
Partnership with society

The Tokyo mission statement generated ten codes (see Figure 52). Their mission statement emphasized all traditional areas of mission – a "world-class platform for research and education" (19:1) and service to "nurture global leaders" (19:4) by fostering a "strong sense of public responsibility" (19:5). Innovation was evidenced with general phraseology such as "a pioneering spirit" (19:6) and to "expand the boundaries of human knowledge" (19:10) (see Figure 52).

Figure 52
University of Tokyo – Mission Statement In Vivo Codes

Number	In Vivo Code
19:1	World-class platform for research and education
19:2	Contributing to human knowledge
19:3	Partnership with other leading global universities
19:4	Nurture global leaders
19:5	Strong sense of public responsibility
19:6	Pioneering spirit
19:7	Deep specialism
19:8	Broad knowledge
19:9	Partnership with society
19:10	Expand the boundaries of human knowledge

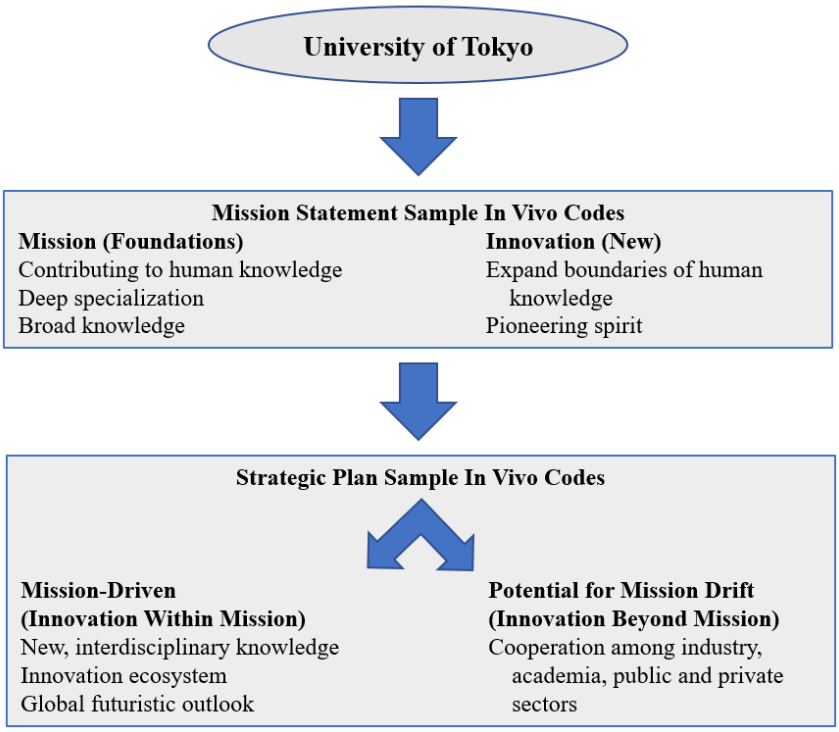
Strategic Plan Content Analysis. Tokyo (2020a) demonstrated evidence of General Innovation Phraseology and specific innovative initiatives in its strategic plan. Tokyo's strategic plan generated sixteen In Vivo Codes. More generally speaking, rhetoric included phraseology such as an "innovation ecosystem" (19:20) and "futuristic global outlook" (19:23). In addition, reference was made to "collaborative relationships" (19:13) to "transcend the boundaries of nations, cultures and generations" (19:14) and "create new, interdisciplinary knowledge" (19:16). In addition, they described the intent to "cooperate among industry, academia, and the public and private sectors" (19:19). Specific innovative initiatives included the "World-leading Innovative Graduate Study (WINGS)" (19:18) and "entrepreneurship that utilizes academic findings" (19:12) (see Figure 53).

Figure 53
University of Tokyo – Strategic Plan In Vivo Codes

Number	In Vivo Code
19:11	Develop new concepts originally
19:12	Entrepreneurship that utilizes academic findings
19:13	Collaborative relationships
19:14	Transcend boundaries of nations, cultures and generations
19:15	Coordinate with research institutes, private companies, and government agencies
19:16	Create new, interdisciplinary knowledge
19:17	Creation of new value
19:18	World-leading Innovative Graduate Study (WINGS)
19:19	Cooperate among industry, academia, and the public and private sectors
19:20	Innovation ecosystem
19:21	Promote entrepreneurship
19:22	Advancements in learning
19:23	Futuristic global outlook
19:24	Promote interdisciplinary research
19:25	Joint research and international collaboration
19:26	Transcend the frameworks of their organizations

Mission – Innovation Alignment. Tokyo provided an interesting focus on more of the collective good and boundary spanning beyond the institution. There were several examples of mission-driven innovation such as knowledge creation through interdisciplinarity and emphasis on globalism for the future. However, there were several areas of potential mission drift depending on the interpretation of rhetoric. Specifically, their discourse suggested boundary spanning collaboration beyond the walls of academe with industry and government agencies (see Figure 54).

Figure 54
University of Tokyo – Mission-Strategic Innovation Alignment



Georgia Institute of Technology

Institutional Overview. The Georgia Institute of Technology (Georgia Tech) was ranked 29th in the world for innovation (Reuters, 2018a), founded in 1885, a public technology-focused university in the United States southeast with 29,376 students. Like the University of Tokyo, Georgia Tech was also influenced by the German model of higher education focusing on technical, utilitarian education (Henderson, 1970) with an even heightened emphasis signaled by the Institute's namesake.

Mission Statement Summary. Like Stanford, the Georgia Tech (2020) mission statement emphasized Innovation Concept Codes at 40% which was significantly higher than the institutional mean at 19%. However, their total number of words at 113 were significantly less than Stanford at 251 and the institutional mean at 205 (see Figure 55).

Figure 55
Georgia Institute of Technology – Mission Statement Summary

Georgia Institute of Technology Mission Statement Summary
Total Words: 113
Mission vs. Innovation Concept Codes: 60% vs. 40%
Sample In Vivo Codes:
Technological research university of the 21st century
Motto of "Progress and Service"
Entrepreneurship in all sectors of society

The Georgia Tech (2020) mission statement generated 17 codes (see Figure 56). While Georgia Tech professed a greater percentage of innovation rhetoric, they maintained traditional mission statement phraseology such as "teaching" (28:6), "learning" (28:7), "research advances" (28:8), and service to "address critical global challenges" (28:15). For innovation, general phraseology included terms like "entrepreneurship" (28:9) and "technological change" (28:1). Several examples of Innovation Within Mission were evidenced such as "improving the human condition" (28:10) in "Georgia, the United States, and around the globe" (28:11) to "define the technological research university of the 21st century" (28:12).

Figure 56
Georgia Institute of Technology – Mission Statement In Vivo Codes

Number	In Vivo Code
28:1	Technological change
28:2	Advancement of the human condition
28:3	Georgia Tech community – students, staff, faculty, and alumni
28:4	Motto of "Progress and Service"
28:5	Innovation
28:6	Teaching
28:7	Learning
28:8	Research advances
28:9	Entrepreneurship in all sectors of society
28:10	Leaders in improving the human condition
28:11	Georgia, the United States, and around the globe
28:12	Define the technological research university of the 21st century
28:13	Influential leaders
28:14	Major technological, social, and policy decisions
28:15	Address critical global challenges
28:16	Common question, "What does Georgia Tech think?"
28:17	Research, business, the media, and government

Strategic Plan Content Analysis. Given the larger number of Innovation In Vivo Codes in the Georgia Tech (2020) mission statement, it came as no surprise that they generated more In Vivo Codes relative to the previous institutions measured with a total of 26. Georgia Tech provided descriptive rhetoric of Innovation Within Mission and areas potentially beyond mission.

In Vivo Codes for Innovation Within Mission included “a testbed of innovation in learning and education” (28:19), “assess societal and ethical impact of research and innovation” (28:27), “develop physical campuses into living, learning labs” (28:28), “culture of deliberate innovation” (28:37), and “leading start-up and innovation school” (28:22). In Vivo Codes for Innovation Beyond Mission were evidenced such as “partnerships with key public and private actors” (28:29) and “innovation partner of choice for leading companies and organizations” (28:21) (see Figure 57).

Figure 57
Georgia Institute of Technology – Strategic Plan In Vivo Codes

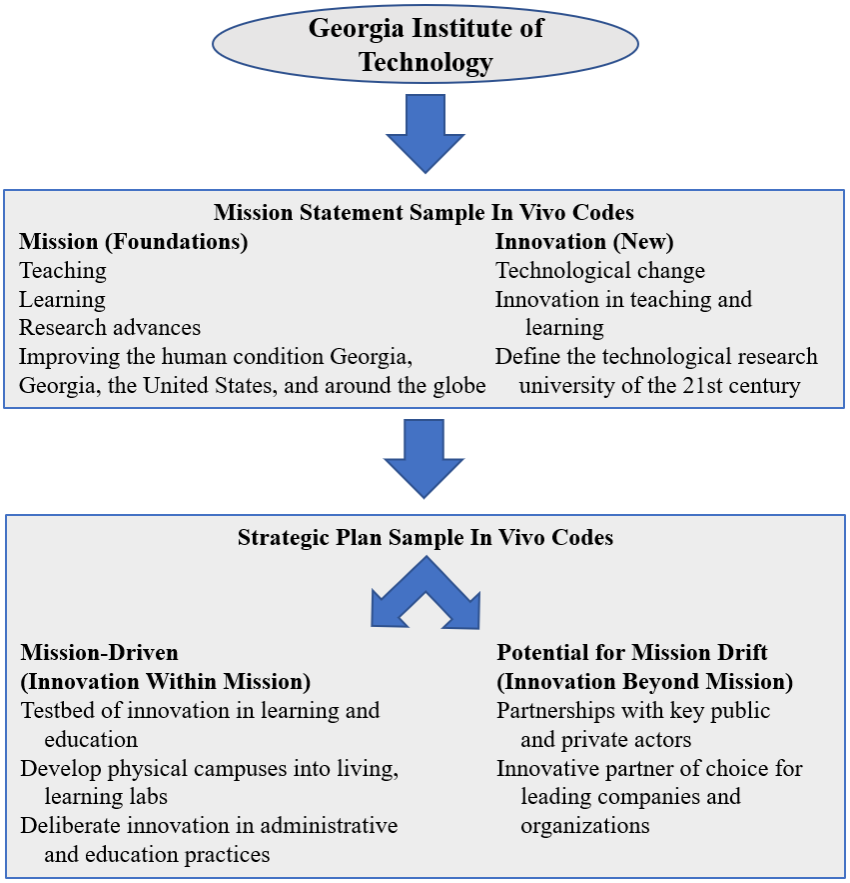
Number	In Vivo Code
28:18	Advance issues in Sustainable Development Goals
28:19	Testbed of innovation in learning and education
28:20	Deliberate innovation in administrative and education practices
28:21	Innovation partner of choice for leading companies and organizations
28:22	Leading start-up and innovation school
28:23	National leader in education technology and innovation
28:24	Champion innovation
28:25	Collaborate with other public and private actors
28:26	Position Atlanta and Georgia for inclusive innovation
28:27	Assess societal and ethical impact of research and innovation
28:28	Develop physical campuses into living, learning labs
28:29	Partnerships with key public and private actors
28:30	Development and application of learning innovations
28:31	Students as creative problem solvers and leaders of positive change
28:32	Expand research portfolio
28:33	Incorporate the arts and creative fields into curriculum
28:34	Global learning platform of unmatched impact and scale
28:35	Hub of worldwide collaboration
28:36	Interdisciplinary research, learning, and collaboration
28:37	Culture of deliberate innovation
28:38	Lead global collaborative efforts
28:39	Engine of innovation and entrepreneurship
28:40	Global innovation hubs
28:41	Novel solutions to critical and complex problems
28:42	Intersection of art, media, and technology
28:43	Push the frontier of science and technological inquiry

Mission – Innovation Alignment. Technology is at the heart of Georgia Tech which reinforced the preponderance of innovation rhetoric in its strategic plan. This includes many innovation strategies aligned with the mission in teaching and learning by stating “a testbed of innovation in learning and education” (28:19), research through goals stated to develop “physical campuses into living, learning labs” (28:28), and linking administration to the education function by stressing the “deliberate innovation in administrative and educational practices” (28:20). The area of possible mission drift, as with previous institutions illuminated, was attributed to external

forces seen in the following codes: “partnerships with key public and private actors” (28:29) and becoming the “innovative partner of choice for leading companies and organizations” (28:21) (see Figure 58).

Figure 58

Georgia Institute of Technology – Mission-Strategic Innovation Alignment



University of Oxford

Institutional Overview. The University of Oxford (Oxford) was ranked 40th in the world for innovation (Reuters, 2018a), the oldest university recognized for innovation, was founded in 1096, a private British university (receiving public funding) in Europe with 19,790 students. Oxford (2020) provided a historical overview that captured some key innovations within their core mission. For instance, the institution claimed the title of the oldest English-speaking university in the world, founded in 1096, in which a form of teaching was first evidenced. Additionally, one century later, the University admitted its first international student, which broadened its scope and opened its borders, a priority to this day. While they emphasized a humanistic core curriculum for centuries, they adopted curricular innovations associated with the Germanic model in the twentieth century by adding research to their mission in the natural sciences, applied sciences, and medicine. Their dedication to these research efforts likely contributed to their ranking on the Reuters (2018a) Top 100 list.

Mission Statement Summary. The Oxford (2020) mission statement emphasized Mission Concept Codes at 87% which is higher than the institutional mean at 81%. Additionally, their total number of words at 191 were similar to Harvard at 179 and the institutional mean at 205 (see Figure 59).

Figure 59

University of Oxford – Mission Statement Summary

University of Oxford **Mission Statement Summary**
Total Words: 191
Mission vs. Innovation Concept Codes: 87% vs. 13%
Sample In Vivo Codes:
World-class research and education
Long-standing traditions
Independent scholarship and academic freedom
Culture of innovation and collaboration

The Oxford (2020) mission statement generated 19 codes (see Figure 60). Codes encompassed all areas of traditional mission – teaching, learning, research, and service. In some cases, they were intertwined such as with "world-class research and education" (39:3), "independent scholarship and academic freedom" (39:7), and "diverse staff and student body strengthens research learning" (39:11). Service provided the breadth of communities served by stating the intent to "benefit society" (39:4) on a "local, regional, national and global scale" (39:5). In regard to innovation, general phraseology with specific mention of innovation was evidenced such as "culture of innovation and collaboration" (39:8). Innovation Within Mission rhetoric included "interdisciplinary nature of the colleges" (39:17) (see Figure 60).

Figure 60

University of Oxford – Mission Statement In Vivo Codes

Number	In Vivo Code
39:1	Work as one Oxford
39:2	Staff, students, alumni, colleges, faculties, departments, and divisions
39:3	World class research and education
39:4	Benefit society
39:5	Local, regional, national and global scale
39:6	Long-standing traditions
39:7	Independent scholarship and academic freedom
39:8	Culture of innovation and collaboration
39:9	Very best students and staff flourish
39:10	Equality, inclusivity, and well-being
39:11	Diverse staff and student body strengthens research and learning
39:12	Distinctive democratic structure
39:13	Born of its history
39:14	Collegiate structure
39:15	Academic strength
39:16	Highly attractive student experience
39:17	Interdisciplinary nature of the colleges
39:18	Teaching strength
39:19	Defining and enduring sense of community

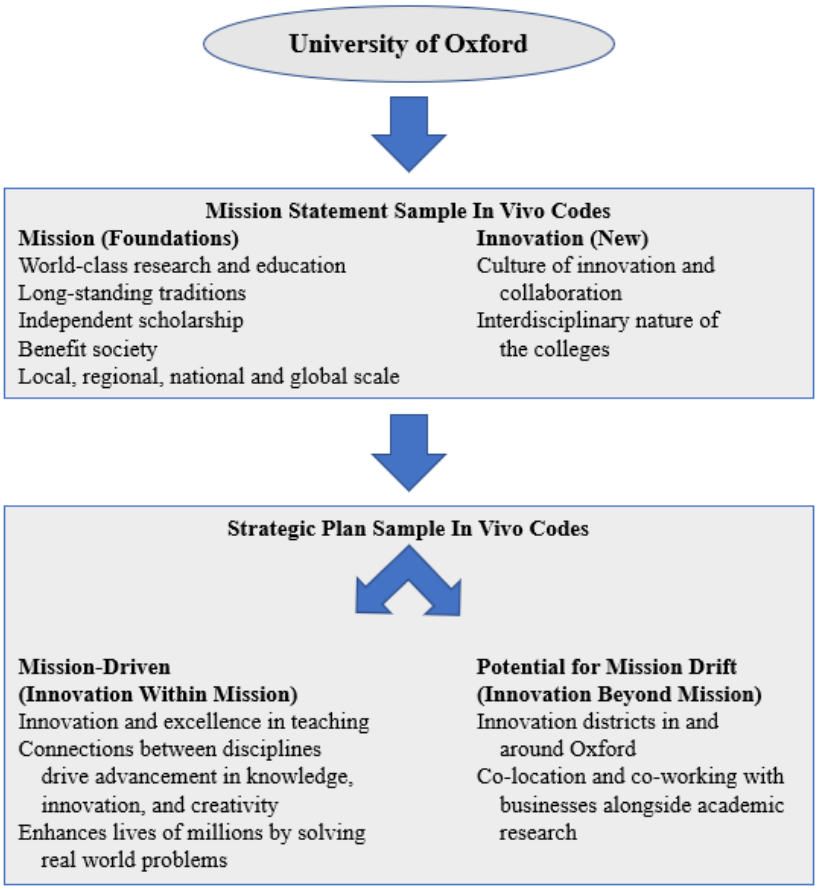
Strategic Plan Content Analysis. The Oxford (2020) strategic plan generated 23 codes (see Figure 61). This multitude of codes illuminated their innovation strategies through broad phraseology and with specific initiatives largely within mission. Some In Vivo Code examples of general innovation rhetoric included "innovation culture of the university" (39:32) and "innovation offered by digital technology" (39:35). In regard to efforts with teaching and learning, Oxford emphasized their "innovation and excellence in teaching" (39:22) and "investment in innovation activities and an entrepreneurial environment for staff and students" (39:23). Research emphasized that "connections between disciplines drive knowledge, understanding, innovation, and creativity" (39:21). For service, they "enhance the lives of millions by solving real-world problems" (39:36) and touting an "extensive network of partnerships and collaborations" (39:37). There were several areas of potential Innovation Beyond Mission such as "innovation districts in and around Oxford" (39:29) and the "co-location and co-working with businesses alongside academic research" (39:31).

Figure 61
University of Oxford – Strategic Plan In Vivo Codes

Number	In Vivo Code
39:20	Ambitious discovery-led research
39:21	Connections between disciplines drive knowledge, innovation, and creativity
39:22	Innovation and excellence in teaching
39:23	Entrepreneurial environment for staff and students
39:24	Investment in digital tools and infrastructure for open scholarship
39:25	Digital investment to reach global audiences and communities
39:26	Small- and large-scale research collaborations
39:27	Enterprise and innovation
39:28	Strategic international research collaborations
39:29	Innovation districts in and around Oxford
39:30	Regional, national, and international collaboration
39:31	Co-location and co-working with businesses alongside academic research
39:32	Innovation culture of the university
39:33	Collaborative research activity with business, industry, and other external organisations
39:34	Information technology for research, teaching, and learning
39:35	Innovation offered by digital technology
39:36	Enhances the lives of millions by solving real-world problems
39:37	Extensive network of partnerships and collaborations
39:38	Researcher freedom to investigate curiosity-driven or challenge-led problems
39:39	National and international collaboration
39:40	World-class regional innovation ecosystem
39:41	High-quality and innovative public engagement
39:42	Innovation and translation in the medical and health sciences

Mission – Innovation Alignment. Oxford provided a number of clear examples of Innovation Within Mission in areas related to teaching, learning, and research. Also, of note, they were more deliberate in using the actual word, "innovation," relative to other universities examined in this study, who opted for more general descriptors that could be interpreted as innovation (e.g., "transform," "pioneer"). The area of potential mission drift has become a common theme in this phase of the study with external collaborations and innovation centers that could blur the lines of institutional purpose (see Figure 62).

Figure 62
University of Oxford – Mission-Strategic Innovation Alignment



Technical University of Munich

Institutional Overview. The Technical University of Munich (Munich) was ranked 45th in the world for innovation (Reuters, 2018a), was founded in 1868, a public German university in Europe with 36,929 students. Like the University of Tokyo and Georgia Tech, Munich also adopted the Germanic model focused on technology and research. Additionally, like Georgia Tech, Munich projected an emphasis on innovation through its institutional name before more closely examining their mission statement and strategic plan rhetoric.

Mission Statement Summary. Perhaps also not surprisingly, as with Georgia Tech and Stanford, the Munich (2020a) mission statement emphasized Innovation Concept Codes at 39%, well above the institutional mean at 19%. However, their total number of words at 906 were significantly higher than most universities measured with the institutional mean at 205 (see Figure 63).

Figure 63
Technical University of Munich – Mission Statement Summary

Technical University of Munich **Mission Statement Summary**
Total Words: 906
Mission vs. Innovation Concept Codes: 61% vs. 39%
Sample In Vivo Codes:
International networks and alliances for teaching and research
Support and enable an innovative society
Think and act like an entrepreneur

The Munich (2020a) mission statement generated 35 codes (see Figure 64). Given the breadth of Munich's mission statement, they provided more descriptive rhetoric than most of the institutions reviewed. While they included terminology related to traditional missions, there were many examples of innovation. In regard to mission, they used phrases such as "teaching priorities" (44:31), "most gifted young scientists" (44:15), "fundamental research" (44:18), and "fundamental mission to serve society" (44:2). General Innovation Phraseology included "think and act like an entrepreneur" (44:16) and "creative spirit of graduates" (44:33). Specific examples of Innovation Within Mission were evidenced such as "support and enable an innovative society" (44:1), "interdisciplinary research areas" (44:6), and "equip our students with the capacity to accompany social change" (44:28). Innovation Beyond Mission might include "market-oriented innovation processes" (44:19) and "found growth-oriented start-ups" (44:21).

Figure 64
Technical University of Munich – Mission Statement In Vivo Codes

Number	In Vivo Code
44:1	Support and enable an innovative society
44:2	Fundamental mission to serve society
44:3	Progress and innovation in science
44:4	Sustainable improvement in how people and society live
44:5	Sense of responsibility for future generations
44:6	Interdisciplinary research areas
44:7	International networks and alliances for teaching and research
44:8	Emerging field policy
44:9	New fields of development between science and industry
44:10	International presence in science and technology
44:11	Foster better understanding between nations
44:12	Educational goals
44:13	Intellectual and emotional creativity
44:14	Entrepreneurial courage
44:15	Most gifted young scientists
44:16	Think and act like an entrepreneur
44:17	Competitive, entrepreneurial university
44:18	Fundamental research
44:19	Market-oriented innovation processes
44:20	Entrepreneurial spirit
44:21	Found growth-oriented startups
44:22	Non-bureaucratic services
44:23	Strong foothold in their market
44:24	Entrepreneurial activities to take a leadership role in Europe
44:25	Research-based technology startups
44:26	Germany's most attractive technical university for women
44:27	Dialogue with society and the general public
44:28	Equip students with the capacity to accompany social change
44:29	Society aware of our science and technology work for the future
44:30	Society dialogue aligns research
44:31	Teaching priorities
44:32	Intellectual curiosity of students
44:33	Creative spirit of graduates
44:34	Expertise of TUM Emeriti of Excellence
44:35	Helpful advisors

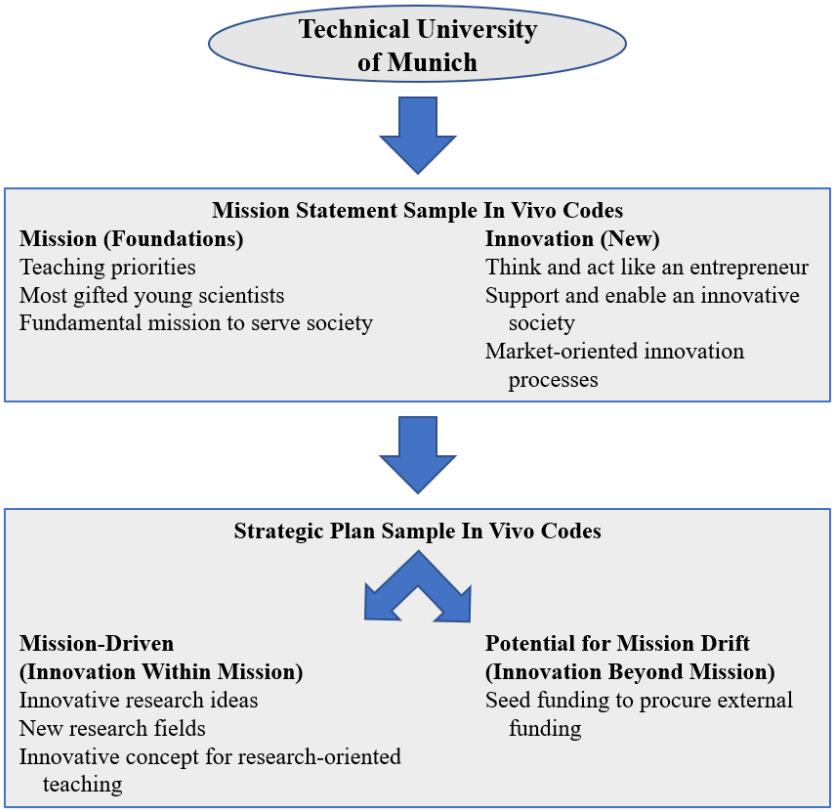
Strategic Plan Content Analysis. The Munich (2020b) strategic plan generated six codes. In Vivo Codes for Innovation Within Mission included "innovative research ideas" (44:36), an "innovative concept for research-oriented teaching" (44:39), and a "platform for interdisciplinary academic exchange" (44:38) (see Figure 65). The one area of potential Innovation Beyond Mission mentioned "seed funding to procure external funding" (44:40).

Figure 65
Technical University of Munich – Strategic Plan In Vivo Codes

Number	In Vivo Code
44:36	Innovative research ideas
44:37	New research fields
44:38	Platform for interdisciplinary academic exchange
44:39	Innovative concept for research-oriented teaching
44:40	Seed funding to procure external funding
44:41	Support for cutting-edge research

Mission – Innovation Alignment. Munich offered an interesting twist to the findings in that there was evidence of potential mission drift highlighted in their lengthy mission statement. Most other universities utilized more general or mission-driven language in their mission statements in which their strategic plans began to shed light on possible straying from the mission statement. Additionally, with Munich, their language was more emboldened as it related to external industry influence with rhetoric like "market-oriented innovation processes" (44:19) and "seed funding to procure external funding" (44:40) (see Figure 66).

Figure 66
Technical University of Munich – Mission-Strategic Innovation Alignment



National University of Singapore

Institutional Overview. The National University of Singapore (NUS) was ranked 63rd in the world for innovation (Reuters, 2018a), was founded in 1980, a public university in Asia with 30,602 students. NUS was one of the newest universities on the list located in Asia and from the most recently established nation in 1965.

Mission Statement Summary. The NUS (2018) mission statement emphasized the highest percentage of Innovation Concept Codes at 66%, well above the institutional mean at 19%. Their total number of words at 14 was the lowest frequency of all universities measured and well below the institutional mean at 205 (see Figure 67).

Figure 67
National University of Singapore – Mission Statement Summary

National University of Singapore **Mission Statement Summary**
Total Words: 14
Mission vs. Innovation Concept Codes: 34% vs. 66%
Sample In Vivo Codes:
Educate
Inspire and transform
Leading global university

The NUS (2018) mission statement generated four codes, the lowest number of all universities on the Top 100 list (Reuters, 2018a). The NUS mission statement was not only short but also used more general language that was not unique to high research universities around the world. Two In Vivo Codes signaled General Innovation Phraseology, "inspire and transform" (60:2) and "shaping the future" (60:4); one word related to mission, "educate" (60:1); and one proclaiming prestige on an international scale (60:3) (see Figure 68).

Figure 68
National University of Singapore – Mission Statement In Vivo Codes

Number	**In Vivo Code**
60:1	Educate
60:2	Inspire and transform
60:3	Leading global university
60:4	Shaping the future

In this particular case, given the limited illumination opportunities available, further research was pursued to shed light on their mission. A press article was obtained at the time of the mission statement unveiling in which the statement was further explicated. NUS (2018) emphasized the people of NUS, a strong sense of community, and heritage in which they declared NUS "a very special institution founded by the community for the community" (para. 5).

Strategic Plan Content Analysis. The NUS (2020) strategic plan generated 11 codes (see Figure 69). In regard to Innovation Within Mission, NUS emphasized international university partnerships through codes such as "global partnerships as valuable platforms for academic leapfrogging" (60:6), "Duke-NUS Medical School 'TeamLEAD' learning model" (60:5), and "Yale-NUS, a new form of liberal arts and science education" (60:15). Of note, they emphasized "global programmes with deep Asian perspectives" (60:7). In addition, they discussed "piloting new programmes such as residential college living and learning" (60:14) (see Figure 69).

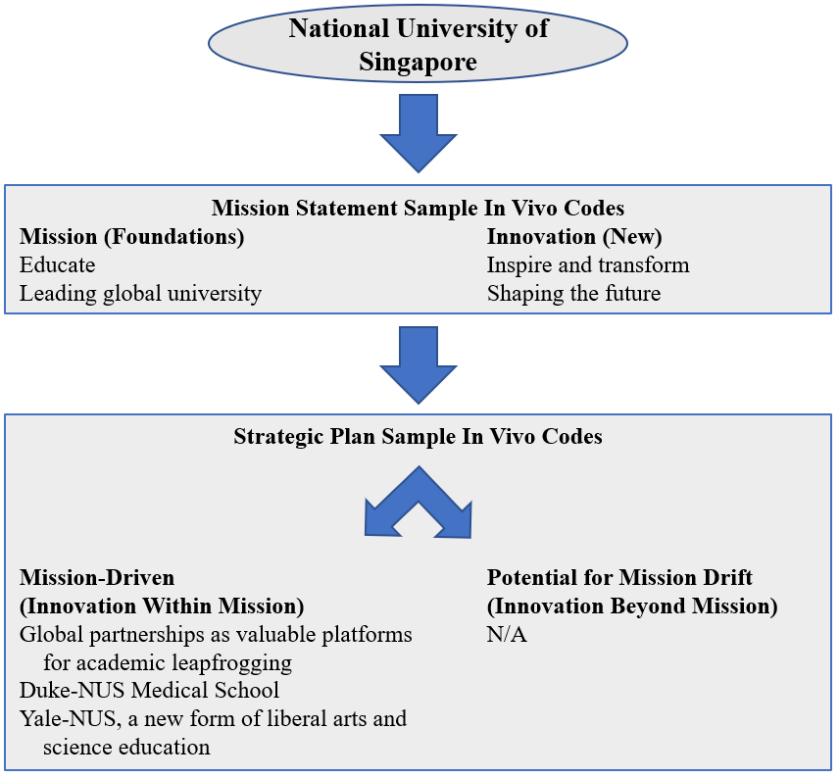
Figure 69

National University of Singapore – Strategic Plan In Vivo Codes

Number	In Vivo Code
60:5	Duke-NUS Medical School "TeamLEAD" learning model
60:6	Global partnerships as valuable platforms for academic leapfrogging
60:7	Global programmes with deep Asian perspectives
60:8	MIT, Johns Hopkins, Duke, and Yale
60:9	Innovate to differentiate
60:10	Pioneered experiential entrepreneurship education
60:11	NUS Overseas Colleges, a unique programme
60:12	Pioneered notable international educational innovations
60:13	Students and alumni creating start-ups
60:14	Piloting new programmes such as residential college living and learning
60:15	Yale-NUS, a new form of liberal arts and science education

Mission – Innovation Alignment. NUS focused broadly on innovation in a remarkably succinct mission statement. Innovation was mission-driven with a strong emphasis on global collaborations with Duke, Yale, MIT, and Johns Hopkins. Interestingly, the mission statement and strategic plan rhetoric did not represent the press release of which provided further institutional illumination such as heritage, people, and the community that was often evidenced in institutional mission statements reviewed in this study.

Figure 70
National University of Singapore – Mission-Strategic Innovation Alignment



University of Virginia

Institutional Overview. The University of Virginia (UVA) was ranked 85th in the world for innovation (Reuters, 2018a), was founded in 1819, a public American university with 24,360 students. UVA was founded during the period following the American Revolution and referred to as the "new national period" (Thelin, 2019, p. 41), a time of innovation and consumerism in response to emerging economies, geographic expansions, and broadening demographics.

Mission Statement Summary. The UVA (2020) mission statement emphasized Mission at 83% almost at par with the institutional mean at 81%. However, like Munich, their total number of words at 948 were significantly higher than most Top 100 (Reuters, 2018a) universities measured with the institutional mean at 205 (see Figure 71).

Figure 71
University of Virginia – Mission Statement Summary

University of Virginia **Mission Statement Summary**
Total Words: 948
Mission vs. Innovation Concept Codes: 83% vs. 17%
Sample In Vivo Codes:
Founding vision of discovery, innovation
Developing responsible citizen leaders and professionals
Impact on students, scholars, and world

The UVA mission statement generated 53 codes (see Figure 72). Like Munich, UVA generated many codes, in fact, even +50% more than Munich. UVA projected interesting themes that were somewhat distinctive from the other universities examined of which tied to their American heritage such as “free and collegial exchange of ideas” (77:9), “Great and Good University” (77:12), “bicentennial” (77:13), “serve the new democracy” (77:18), and “retain that revolutionary spirit” (77:21). Additionally, there was evidence of social mobility and social efficiency with codes such as “student preparation to secure first jobs” (77:27) and “engines of economic growth” (77:36). In regard to innovation, heritage was incorporated by accounting for the “founding vision of discovery, innovation” (77:2) and “advancing, preserving, and disseminating knowledge” (77:6).

Figure 72

University of Virginia – Mission Statement In Vivo Codes

Number	In Vivo Code
77:1	Higher learning
77:2	Founding vision of discovery, innovation
77:3	Develop full potential of talented students
77:4	Serves the Commonwealth of Virginia, the nation, and world
77:5	Developing responsible citizen leaders and professionals
77:6	Advancing, preserving, and disseminating knowledge
77:7	Providing world-class patient care
77:8	Vibrant and unique residential learning environment
77:9	Free and collegial exchange of ideas
77:10	Dedication to excellence
77:11	Affordable access
77:12	Great and Good University
77:13	Bicentennial
77:14	Two hundred years ago, Virginia granted state charter
77:15	Thomas Jefferson
77:16	Type of faculty hired
77:17	Structure of curriculum and courses offered
77:18	Serve the new democracy
77:19	UVA distinctiveness
77:20	Core elements of Jefferson's design were visionary
77:21	Retain that revolutionary spirit
77:22	Remain true to core tradition of innovation
77:23	Built toward a university not like others in existence
77:24	Reimagine what will be expected of universities
77:25	Colleges and universities in 2030
77:26	Quality of classrooms
77:27	Student preparation to secure first jobs
77:28	How long students take to graduate
77:29	Students prepared to lead
77:30	Diverse and globally connected world
77:31	Social and economic mobility
77:32	Research productivity
77:33	Faculty impact on students, scholars, and world
77:34	Great places to work
77:35	Good partners with surrounding communities
77:36	Engines of economic growth
77:37	Reach students of any age or walk of life
77:38	Return on investment when paying tuition
77:39	Serve the public through alumni, research, and medical care
77:40	Setting sights on excelling
77:41	Strive not simply to be great but also good
77:42	Institution both outstanding and ethical
77:43	Excellent for a purpose
77:44	Leading public university
77:45	One of the very best in the world among public and private
77:46	Never forget the ultimate purpose
77:47	Serve the public
77:48	Unending and fearless search for truth
77:49	Teaching, research, and healthcare
77:50	Rededicate ourselves
77:51	Original, animating purpose of UVA, to serve
77:52	Leading public university
77:53	One of the very best overall in 2030

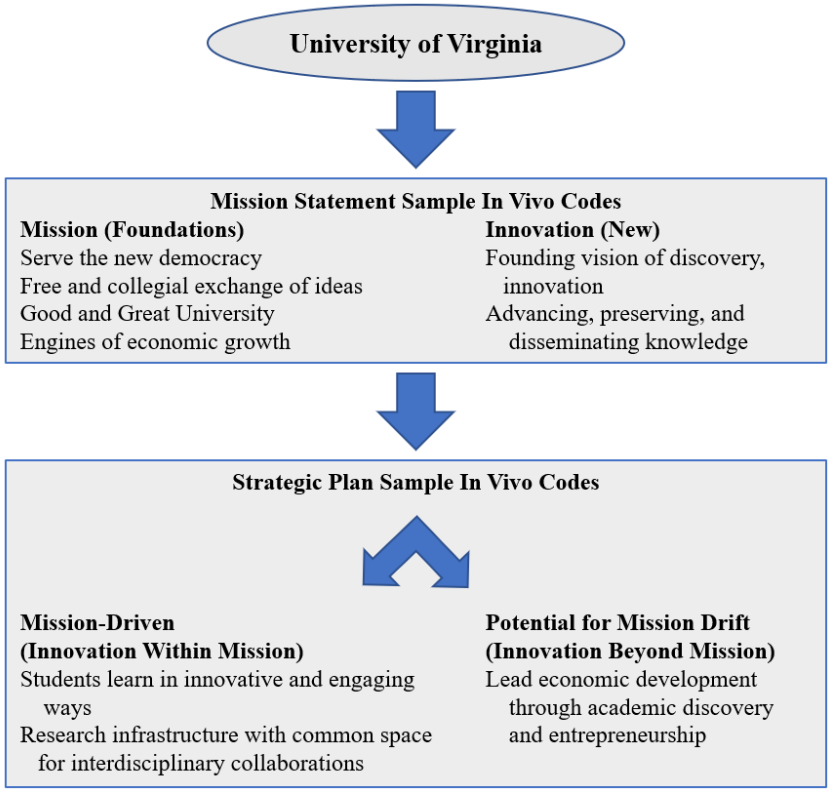
Strategic Plan Content Analysis. The UVA (2020) strategic plan generated 21 codes (see Figure 73), a fraction of the mission statement codes generated, as with Munich. These codes included some reference to UVA's heritage such as "creativity, democracy, and discovery" (77:60). However, the majority of codes were more reflective of Innovation Codes identified with the aforementioned universities. A broad innovation phraseology example included "interdisciplinary work" (77:55). Examples of Innovation Within Mission included "students learn in engaging and innovative ways" (77:67), "learning as an opportunity for discovery" (77:70), and "research infrastructure with common space for interdisciplinary collaborations" (77:71). The potential for Innovation Beyond Mission could be interpreted with "lead economic development through academic discovery and entrepreneurship" (77:73).

Figure 73
University of Virginia – Strategic Plan In Vivo Codes

Number	In Vivo Code
77:54	Advance clinical care and improve population health
77:55	Interdisciplinary work
77:56	Create a sense of discovery
77:57	Cutting-edge research and innovative education
77:58	Catalyst fund for seed funding of research
77:59	New performing arts center as creativity nexus
77:60	Creativity, democracy, and discovery
77:61	Culture that encourages innovation
77:62	Discovery through research partnerships, internships, and international experience
77:63	Discovery not confined to research
77:64	Discovery nexus anchored by School of Data Science with space for interdisciplinary research
77:65	Creative collaborations across grounds and beyond
77:66	Faculty and students commercialize academic discoveries and intellectual property
77:67	Students learn in engaging and innovative ways
77:68	Foundation of collaboration as "School Without Ways"
77:69	Learnings experiences involve moments of discovery
77:70	Learning as an opportunity for discovery
77:71	Research infrastructure with common space for interdisciplinary collaborations
77:72	Collaboration across disciplines and schools
77:73	Lead economic development through academic discovery and entrepreneurship
77:74	Prepare health care workforce of the future

UVA emphasized tradition as a new university established after the American Revolution. Most examples of innovation in their strategic plan represented mission-driven elements related to learning and research. One code suggesting mission drift proclaimed economic development, academic discovery, and entrepreneurship. While not conclusive as mission drift, the external influences and associated financial pressures could impact the institutional purpose and strategic initiatives.

Figure 74
University of Virginia – Mission-Strategic Innovation Alignment



Summary of Findings for Phase II

Reviewing the strategic plans for ten institutions illuminated the operationalization of innovation to assess institutional alignment for the ten universities selected. Most universities published more lengthy strategic plans relative to their mission statements. Their mission statements provided primarily General Innovation Phraseology and Innovation Within Mission; their strategic plans provided more illumination of innovation strategies. Interestingly, the two universities with lengthy mission statements (Munich and UVA) published shorter strategic plans. Of note, NUS published an unusually short mission statement and strategic plan.

All universities referenced innovation in their strategic plans and all but one in their mission statements. Most rhetoric was coded as Innovation Within Mission to introduce new approaches to teaching and learning. The concept of service was more deeply examined for its vast rhetoric. For example, most universities emphasized service within their local, national, and international contexts. The incidence of possible mission drift resulted from external partnerships and a blurring of the service realm of university missions.

Summary of Findings, Limitations, Recommendations, and Conclusions

This study was designed to explore some of the mounting pressures higher education practitioners face in approaching innovation strategically while recognizing the mission-driven needs of the institution. Two research questions were examined. First, how do highly innovative universities communicate traditional missions and innovation in their mission statements? Second, to what extent do innovation strategies stated in their strategic plans align with their mission statements? This study was grounded in institutional theory given the breadth of literature linking this theory to institutional rhetoric such as mission statements (Morphew & Hartley, 2006). Additionally, the theory demonstrated relevancy in assessing the debate over legitimizing tendencies like symbolism and signaling (Meyer & Rowan, 1977); conversely, mission statements were argued to also offer meaningful utilitarian prose (Morphew & Hartley, 2006). The research design examined the Top 100 international universities recognized for innovation by Reuters (2018a).

Before proceeding with the two-phased data analysis, an interdisciplinary contextual overview was conducted to examine geographic, historical, and financial factors on a macro basis utilizing ATLAS.ti geospatial mapping software. Then, Phase I examined the first research question focused on unpacking mission statements qualitatively with some quantitative data to provide further illumination. A content/archival review of mission and/or vision statements of the Top 100 universities was examined as publicly available. Concept and In Vivo Coding were conducted using ATLAS.ti software to provide a descriptive statistics overview and a more in-depth qualitative analysis. At this point, normative rhetoric, indicative of institutional theory, began to emerge along with more distinctive behaviors. In Phase II, descriptive statistics were analyzed at the institutional level to confirm the final ten universities selected for the second content analysis. This in-depth review examined alignment of mission statements and strategic plans to assess mission-driven or mission drift evidence for select universities identified.

With the data collection and analysis complete, hypotheses were revisited having been crafted as a result of the research purpose and literature as a means of sensemaking for analytical and comparison purposes leading into the key findings. Three of the four hypotheses were confirmed as detailed below.

> ***H1: Given the longevity of most institutions and their recognition as innovators within higher education, mission statements and strategic plans will comprise some similar and some differentiated elements.***
>
> **H1 Finding – Confirmed.** All 85 universities measured in Phase I showed evidence of traditional mission components related to teaching, learning, and service. Most universities included reference to innovation utilizing general descriptors and with reference to mission. ATLAS.ti software allowed for the quantitizing (Saldaña, 2016) of coding data using ATLAS.ti software. Results showed a wide range of mission statement length from 14 words – 954 words with the mean number of words at 205 and the median at 130 suggesting the extremes could be considered outliers yet illuminating in their own rights and included for Phase II review. For the ten universities selected for closer examination, they ranged in the composition of Mission and Innovation Codes

substantially – from 100% Mission/0% Innovation to 34% Mission/66% Innovation. While all universities were recognized for exemplar innovation internationally by Reuters (2018a), they differed in emphasizing institutional rhetoric relative to mission.

H2: Some commonalities will exist within institutional types (e.g., public versus private, by region).

H2 Finding – Confirmed. In reviewing the ten universities more closely in Phase II, several commonalities existed within institutional types. In regard to public (The UT System, Tokyo, Georgia Tech, Munich, NUS, and UVA) – themes related to human capital, economic progress, and public policy. For private universities (Stanford, Harvard, KU Leuven, and Oxford), emphasis was placed on global solutions for a better world. From a continental perspective, there was some evidence mirroring the findings of Bayrak (2020). The U.S. demonstrated themes of solutions for societal challenges, leaders for society, and pushing the bounds of discovery; Asia communicated global collaboration, a sense of community, and a futuristic outlook; while Europe also emphasized international partnerships along with innovative education and research.

H3: The older the university, the more likely heritage and traditional mission will be emphasized.

H3 Finding – Not Evidenced. Despite the literature suggesting heritage would be communicated for age-old institutions of prowess (Rose, 2017), the data did not support this hypothesis. In fact, only 48 of the over 1,200 codes generated were attributed to the Heritage In Vivo Code. Of the ten universities closely examined, the only three to make historical references were UVA, Oxford, and Stanford; and, their incidence was a very small portion of their mission statement rhetoric.

H4: The newer and technology-driven universities will emphasize innovation.

H4 Finding – Confirmed. Four universities within the ten more closely examined – Stanford, Georgia Tech, Munich, and NUS – all demonstrated significantly higher than average incidence of Innovation Codes. In comparison to the mean of 85 universities (19% Innovation to 81% Mission), NUS led the incidence of innovation with 66%, followed by Stanford with 53%, Georgia Tech with 40%, and Munich 39%.

Summary of Findings

Findings are distinguished between research questions one and two. Each finding includes a discussion based on the literature with corresponding implications.

Findings for Research Question One – Mission and Innovation Rhetoric in Mission Statements

The first research question explored how international universities recognized for innovation communicated traditional missions and innovation in their mission statements. More

broadly speaking, the mission statements were examined through the definition of "the purpose, philosophy, and educational aspirations" (Hendrickson et al., 2013, p. 9). Innovation was defined as "the wellspring of social and economic progress, and both a product and facilitator of the free range of ideas" (Poole & Van de Ven, 2004, p. xi). These definitions provided the opportunity to examine general phraseology before identifying more specific operationalization of mission (teaching, learning, research, service, traditional mission) and innovation rhetoric within mission and beyond mission. Upon review and coding of the documents, four key findings were identified.

The trifecta of university missions (teaching, research, and service) dominated mission statement rhetoric for most universities studied in Phase II. Harris (2013), Morphew and Hartley (2006), and Thelin (2019) defined these three overarching components of mission which were evidenced in this study. In addition, learning (student-centered) was coded separately from teaching (institution- and instructor-centered) given both had strong incidence of rhetoric**.** As a result, the main implication identified was a confirmation that the three areas of mission continue to be relevant and signal legitimacy of high research universities recognized for innovation based on their mission statement rhetoric. Of note, when reviewing the ten Phase II universities, eight of the ten (Harvard University, The University of Texas System, KU Leuven, University of Tokyo, Georgia Institute of Technology, University of Oxford, Technical University of Munich, and University of Virginia) maintained the majority of their rhetoric for Mission over Innovation Codes. Two universities (Stanford University and National University of Singapore) emphasized innovation over mission language in their mission statements.

Innovation language within mission statements was largely comprised of general phraseology or reference to mission, not beyond mission (or drift). Mission statements provided countless examples of General Innovation Phraseology such as creativity, discovery, pioneering, collaboration, and interdisciplinary. This discourse was representative of innovation descriptors featured in *Mission-Driven Innovation* (Hearn & Warshaw, 2015) and *The Innovation Imperative* (*Chronicle*, 2019). While there was little signaling of mission drift in the mission statements, General Innovation Phraseology could leave room for interpretation and potential confusion of the strategic plan and initiatives misaligning with the mission.

The service component of mission tied to Innovation Beyond Mission was driven by external, societal influences. This Mission Code generated the highest number of entries collectively and was dominated by the service code. The strong incidence of service tied with external, societal influences corresponded well with the study grounded in institutional theory. The theory posits that external forces drive normative behaviors of institutions to generate resources of which were evidence in reviewing the rhetoric. Examples of service and society included geographies served (e.g., state, national, global), community partners (e.g., government, industry), human capital, and public versus private goods (Labaree, 1997). In examining the service component of mission statements, the external environment was widely mentioned. Thus, service lent itself to examples of innovation operationalization beyond university walls which may create a stronger opportunity for mission drift activities depending on stakeholder perspectives.

Institutions varied with the level of brevity and specificity of rhetoric within their mission statements. For shorter mission statements like the National University of Singapore, they may be so succinct and vague that they do not provide enough specificity to signal institutional priorities. On the other extreme, lengthy mission statements, like UVA and Munich, blurred the lines with more detailed strategic plans that lacked clarity and convoluted the overall purpose. The extremes on the brevity spectrum can translate to meaningless rhetoric of mission statements as a legitimizing tool and the difficulty constituents may face in sensemaking (Ayers, 2015; Morphew & Hartley, 2006). Effective mission statements could be likened to the Goldilocks analogy. Too few words can be generic and not provide an informative blueprint. Too much rhetoric provides an "everything-but-the-kitchen-sink" effect which detracts from institutional focus. Effective mission statements have been described as original, authentic, easy to remember, and validated by research (Özdem, G., 2011); distinctiveness was stressed in which institutions embrace their societal purpose as predicated by institutional type, which will naturally differ (Dickeson, 2010; Ellis & Miller, 2014; Gardener, 1961; Harris, 2013).

Findings for Research Question Two – Strategic Innovation and Mission Alignment

The second research question examined the mission statements and strategic plans for ten universities around the world to identify rhetoric that was mission-driven versus potentially mission drift. Jonker and Meehan (2014) explicated an organization to focus on mission-driven initiatives when they align with their stated purposes. Conversely, when missions expand beyond their key purpose, they fall into mission drift (Hendrickson et al., 2013). Ariño Villarroya (2017) posited that the service component has expanded as a result of the knowledge economy and the emergence of the entrepreneurial university in which external pressures may encourage perceived mission drift. The two key findings related to the heightened incidence of mission-driven rhetoric and the drivers and perceptions associated with potential mission drift are supported by the literature.

The majority of strategic innovation was classified as mission-driven. Emerging themes included experimentation and innovation in pedagogy, collaboration with researchers around the world, and the heightened use of technology such as with learning platforms, technological research, and virtual collaborations**.** As evidenced over the centuries, innovation initiatives more broadly defined as driving social and economic progress (Poole & Van de Ven, 2004) underscore the continual advancements HEIs have made over the centuries. Thelin (2019) explicated the changing roles institutions have assumed in addressing changing societal needs. It is not a question of *if* HEI practitioners will need to innovate, but *how* and *when* they will in consideration of mission-driven advancements needed.

External, society-driven innovation provided the greatest opportunity for mission drift based on stakeholder perspectives. The operative words in mission drift assessment are *potential* or *perceived*. Mission drift assessments illuminated institutional purposes versus actions in which resources were attributed to driving changing business models (Foss & Saebi, 2017; Klein et al., 2017; Weerawardena et al., 2019). Additionally, the shift from HEIs as public to private goods (Labaree, 1997) partly resulting in the intertwining of industries and universities has led to heightened debates. Recent publications such as *The Great Mistake: How We Wrecked Public Universities and How We Can Fix Them* by Newfield (2017) critique the rise of modern

universities; proponents of 21st century education models have been published at length such as *Designing the New American University* by Arizona State University president, Michael Crow, and Senior Research Fellow, William Dabars (2015). Serving society can reinforce the value higher education plays in local, national, and international communities; conversely external forces can result in negatively impacting the ideals of higher education priorities.

Recommendations

Given the macro approach to this study, more specific recommendations were made for practitioners within institutions with responsibility for mission statements and strategic planning initiatives. While innovation is often associated with technology first and foremost, most practitioners are faced with the broader definition of new ways to manage their work. This research encourages frameworks to guide them.

Recommendations for Practitioners

The following practitioner recommendations are based on the first research question regarding mission and innovation rhetoric in mission statements.

Gear mission statements toward key audiences. When crafting mission statements for **student-driven** purposes, develop mission statements that reinforce legitimacy of institutional and strategic differentiation to support admissions. Mission statements include their main purposes, for research universities – teaching, research, and service. This language provides a legitimizing effect towards normative behavior. Providing strategic differentiation can be communicated to students by providing specific examples of mission related to their experience, opportunities available while attending college, and how they might apply to desired outcomes for the future. For **program-driven** mission statements, reinforce legitimacy of the program and strategic differentiation, the overall purpose and priorities of initiatives, and for accreditation purposes or other governing bodies. Mission statements provide the compass for program priorities. They are often required for academic programs to satisfy accreditation expectations and student affairs to meet the Council for the Advancement Standards. Effective program mission statements align with institutional missions to ensure alignment of initiatives and corresponding resources required. At the **institutional level**, mission statements reinforce legitimacy and purpose to all constituencies, internal and external. Institutional mission statements are required by accrediting bodies in the U.S. and by ministries of education in many countries. Clarity and support of mission statements from the internal and external community encourage stronger cohesiveness and positive implementation.

Ensure specificity and relevance of innovation rhetoric within mission statement. Given the many interpretations of innovation, the term should be referenced with enough specificity and relevance. In utilizing innovation language to support admissions (**student-driven**), rhetoric should provide specific examples of innovation related to areas impacting teaching, learning, and service as applicable. For innovative university initiatives (**program-driven**), descriptions should tie to the program's purpose which ultimately support the university mission. More broadly speaking at the **institutional level**, the scope of innovation and specific examples can signal operationalization for internal and external audiences. For instance,

speaking of a culture of innovation and collaboration sets the tone of an innovation-focused campus more generally. Additionally, detailing geography such as on a regional, national, and/or international basis provides scope of partnership opportunities.

Align initiatives and resources against mission-driven innovation strategies. Focus initiatives and resources on mission-driven activities. Carefully examine initiatives that fall into a potentially mission-drift category to assess relevance and clarify mission-driven relevance. Assess innovation rhetoric that potentially veers from mission. Further unpack the perspectives from various stakeholders (e.g., administrators versus faculty, internal versus external), the underlying factors that influence these initiatives, and how vital they are to the operation.

Establish strong scope of mission statements. Create clear mission statements that establish legitimacy and clarity, yet save expounding for the strategic plan. Overly brief mission statements using generic language cause confusion, lack of direction, and an ineffective use of resources. While overly detailed mission statements can cause a lack of clarity and focus on the central purpose and priorities.

Additional practitioner recommendations are based on the second research question regarding the strategic use of innovation and innovation alignment.

Align innovation initiatives with the mission and strategic plan. Connect innovative initiatives to the core mission and strategic plans. Strategic innovation should provide greater detail as a means to sufficiently signal operationalization of innovation efforts for the institution. Examples could include utilizing new technologies to enhance instruction and learning, encouraging innovative research ideas, adopting new learning labs or collaborations with other departments, and collaborating on major projects with international partners.

Evaluate externally-based innovations and their alignments with internal missions. Evaluate externally-related innovations and their impacts on their alignment with internal missions. Also, watch for external influences that would negatively impact mission. With the service component of mission so closely tied to external, societal initiatives, it is important to maintain clear distinctions of the roles played within partnerships. For instance, a collaboration with industry could involve academic research fueling industry innovation. Distinctions should be made for the revenue opportunities for non-profit universities versus profit-minded corporations.

Recommendations for Future Research

The following future research recommendations are based on the first research question regarding the strategic use of innovation and the alignment with traditional missions.

Expand exploration of mission statements by institutional types and content. This study explored strategic mission alignment for a high stature sample of international universities recognized for innovation by Reuters (2018a). However, innovation rhetoric could look different among **Carnegie classifications** such as community colleges and based on the size of institution in which this methodology could be applied against other university sample

sets. Additionally, the opportunity exists to utilize quantitative methods to extend the unit of analysis to the thousands of institutions to make generalizable and explanatory results such as was conducted by Ayers (2015). Additional research projects could involve conducting **comparison studies based on other international ranking systems.** While Reuters (2018a) focused on the innovation aspect of Top 100 universities internally, other international ranking systems could be explored (e.g., *Times Higher Education* World University Rankings, Quacquarelli Symonds World University Rankings, and Academic Ranking of World Universities, also known as Shanghai Ranking [Soh, 2017]). Additionally, regionalized innovation ranking systems such as the U.S. News and World Report's (2020) Most Innovative Universities have emerged with algorithms generating different results such as placing a strong emphasis on peer institutional review. While this study focused on investigating the innovation component of mission more broadly, **additional codes were noted for future studies**. Specific codes emerging included diversity, equity, and inclusion; service at local, national and/or international levels; excellence and high quality; and prestige.

Conduct qualitative interviews with stakeholders. Given the potential for mission drift was largely attributed to various stakeholder perspectives, qualitative interviews would more deeply illuminate the benefits and risks for particular institutions. In the spirit of shared governance, productive debates on the positives and drawbacks are vital to the healthy functioning of institutions**. Qualitative interviews with chief innovation officers (CIOs)** at postsecondary institutions would illuminate innovation definitions and initiatives. The emergence of CIOs presents an important opportunity to more greatly understand the role of innovation extending beyond a technology-specific association. This deeper exploration enables the examination of current and future approaches to more strongly enhance the teaching, research, and service of higher education. **Student-centered qualitative studies** related to innovation and its resonance with institutional applications would provide insight on creating messaging for potential students. Innovation is often presented as trendy, boiler-plate language. While driving down the highway, a billboard read "discover and innovate" at a regional college. What exactly did they mean? And did those three words resonate with prospective students? Qualitative interviews would allow for specific interaction with potential applicants to understand how they interpreted the messages and whether that impacted their university selections.

Field qualitative studies with stakeholders tied to external innovation. Many institutions emphasized innovation with external partners such as industry, government, and the community. **Qualitative interviews with internal and external leadership** responsible for innovation and partnerships would enable the opportunity to assess the importance of higher education and the role they play from the outside-looking-in perspective, an insightful vantage. Additionally, **qualitative studies** through the **lens of resource dependency theory** would allow for direct focus on financial and existential factors related to external partnerships. **Neo-institutional theory** would provide an interesting perspective on the role high stature universities play on normative behaviors in the external environment whether it be peer and aspirational universities, industry, and public policy.

The following future research recommendations are based on the second research question regarding the strategic use of innovation and the alignment with traditional missions.

Expand exploration of strategic plans by institutional types. Explore the strategic use of **innovation in different higher education Carnegie classifications.** Strategic plans provide the illumination of innovation operationalization. While high research universities provided specific examples such as learning labs and external collaboration, some strong innovation examples may originate from various institutional types that may face the need to innovate more rapidly to survive and thrive.

Consider opportunities for longitudinal studies. In the five years since launching the Top 100 ranking (Reuters, 2018a), there has been sizable movement at the institutional and continental levels – the trends upwards and downwards would be illuminating. Of note, rankings pre- and post-COVID-19 would provide a novel vantage to examine innovation as many universities have embraced innovations such as learning technology as a matter of providing uninterrupted learning. Examining if these urgent short-term efforts become more institutionalized longer term would be interesting to explore further.

Conduct social networking analyses. The data recorded a notable incidence of higher education institutions working with collaborative partners (e.g., other higher education institutions, industry, government entities). A social networking analysis would illuminate collaboration to assess normative and distinctive behaviors. Studies could be conducted at institutional levels and aggregated for national, continental, and global geographies.

Tables 11 and 12 summarize both research questions with key findings, implications and recommendations for practitioners and future research.

Table 11

Research Question One: Findings, Implications, Recommendations

Research Question (RQ)	Key Findings	Implications	Recommendations - Practitioner	Recommendations - Further Research
RQ1: How do highly innovative universities communicate traditional missions and innovation in their mission statements?	The trifecta of university missions (teaching, research, service) dominated mission statement rhetoric	Confirmation that the three areas of mission continue to be relevant and signal legitimacy of high research universities recognized for innovation based on their mission statement rhetoric	**Student-driven:** Develop mission statements that reinforce legitimacy of institution and strategic differentiation to support admissions; **Program-driven:** Mission statements reinforce legitimacy, institutional priorities, and for accreditation purposes; **Institutional:** Mission statements reinforce legitimacy and purpose to all constituencies, internal and external	**By Carnegie type** - same methodology as this study; Quantitative studies (e.g., Ayers); **Additional codes in mission** - e.g., diversity, international, prestige; **Comparison studies based on other international ranking systems** (e.g., *Times Higher Education* World University Rankings, Quacquarelli Symonds World University Ranking, and Academic Ranking of World Universities, also known as Shanghai Ranking [Soh, 2017])
	Innovation language within mission statements was largely comprised of general phraseology or reference to mission, not beyond mission (or drift)	General phraseology could leave room for interpretation and potential confusion of strategic plan, initiative alignment	Reference innovation with enough specificity and relevance to support admissions (**student-driven**), program enhancements (**program-driven**), and **institutionally** for internal and external audiences	**Qualitative interviews with chief innovation officers** at postsecondary institutions to illuminate innovation definitions and initiatives; **Student-centered qualitative studies** related to innovation and its resonance with institutional applications/interest
	The service component of mission tied to innovation was driven by external, societal influences.	Service extends the mission externally; Service lends itself to a vast degree of operationalization with the greatest chance for mission drift activities	Align initiatives and resources on mission-driven activities. Carefully examine initiatives that fall into a potentially mission-drift category to assess relevance and clarify mission-driven relevance.	**Qualitative interviews with internal and external leadership** responsible for innovation and partnerships; **Qualitative studies** through the **lens of resource dependency theory and neo-institutional theory**
	Institutions varied with the level of brevity and specificity of rhetoric within their mission statements.	Shorter mission statements may be so succinct and vague that they do not provide specifity to exact priorities; Lengthy mission statements blur the lines with strategic plans that do not provide clarity of overall purpose	Create clear mission statements that establish legitimacy, clarity, yet save expounding for the strategic plan.	**Expand study methodology** to institutions beyond high research universities included in this study

Table 12

Research Question Two: Findings, Implications, Recommendations

Research Question (RQ)	Key Findings	Implications	Recommendations - Practitioner	Recommendations - Further Research
RQ2: To what extent do their strategic plans align with their missions?	The majority of strategic innovation was classified as mission-driven	Innovation initiatives continually progress at postsecondary institutions over the centuries	Connect innovative initiatives to the core mission	Explore the strategic use of **innovation in different higher education Carnegie types**
	Societally-driven innovation provided the greatest opportunity for mission drift based on stakeholder perspectives.	Serving society can reinforce the value higher education plays in local, national, and international communities; Conversely, external forces can result in negatively impacting the ideals of higher education priorities	Evaluate externally-related innovations and their impacts on their alignment with internal missions; Watch for external influences that would negatively impact mission	**Opportunities for longevity studies**… already movement since the 2018 ranking year of this study… Reuters has published its international university innovation ranking; **Social networking analyses** of higher education institutions with collaborative partners (e.g., other higher education institutions, industry, government entities)

Limitations

Upon reflecting on this study, several limitations were identified that were mitigated through the research recommendations and additional perspectives identified below. First, the use of rankings has been criticized for multiple reasons such as surface-level institutional assessments through aggregated scoring with less attention given to the algorithms and methodologies used (Soh, 2017). The Reuters (2018a) listing represented a starting point to more closely examine institutions that have been recognized for innovating and adapting effectively. This ranking acted as a sample of 100 universities to explore the phenomenon of innovation more deeply. Most university rankings examine comprehensive criteria which may or may not include innovation as a subset, such as the *Times Higher Education* World University Rankings, Quacquarelli Symonds World University Ranking, and Academic Ranking of World Universities, also known as Shanghai Ranking (Soh, 2017). While internal criticism is prevalent in academic circles, the reality is that university leadership and external audiences continue to focus on rankings (Freeland, 2017; Quiggin, 2015). It is important to understand their inner workings and drawbacks by triangulating as needed.

Additionally, selecting a macro-level analysis like this study acts as the "tip of the iceberg." The broader-level exploration limits the ability for close examination of particular phenomena. In fact, several sub-studies have been generated as a result of this work on an international scale. The research recommendations provide examples of more specific studies to be conducted in the future.

Finally, while efforts were made to understand the context of European and Asian universities, researcher positionality created a U.S.-centric interpretation. To address this issue, international literature was included in addition to peer reviewers with experience in

international higher education policy. Initiatives going forward would benefit from collaborations with European and Asian co-investigators.

Conclusions

"You cannot discuss the ocean with a frog if it has never left its pond. You cannot discuss ice with a summer insect as it knows only its own season. You cannot discuss life with a sage if he is imprisoned by his doctrine."

- The Way of Chuang Tse, 4th Century B.C.

This research explored the institutional missions and the strategic innovation alignment around the world by examining some of the oldest, most renowned elite research universities to some of the newest. This interdisciplinary study examined the varied missions of renowned international universities and their strategic use of innovation through a two-phased content analysis. The study illuminated the perceived ubiquitous nature of mission statements and innovation strategies in a manner to educate, inspire, and, at times, provide caution for higher education practitioners responsible for designing and evolving mission statements and strategic innovation plans moving forward.

The international scope was selected intentionally in light of an increasingly global society and the opportunity to learn from institutions recognized for their innovation efforts around the world. Of note, it is likely that most, if not all, of the thousands of HEIs face aspects of internationalization, even serving local communities (e.g., immigration, study abroad, etc.). A close examination of the university mission statements and their approaches to innovation provide insights of normative and differing strategies for a variety of institutional types from different continents around the world.

Additionally, a close examination of ten universities and their strategic use of innovation allowed for the opportunity to find evidence of mission-driven and/or potential mission drift incidence. This analysis illuminated mission statements and incidence of isomorphism, legitimizing tendencies, and a strategic framework for differentiation. This research fills several gaps in the literature related to international higher education studies, the intersections of traditional university missions with innovation, and the critical use of ranking systems. It also provides a vantage on interdisciplinary uses for ATLAS.ti software beyond the robust coding features, such as geospatial mapping and the opportunity for innovative poster presentations featuring this work.

In closing, innovation continues to be hotly contested in the higher education sphere. A recent special edition of *The Chronicle of Higher Education* (2019) described the debate of innovation as a mechanism for "high hopes or broken promises" (p. 59). In the current worldwide climate of the COVID-19 pandemic, the world is witnessing higher education institutions rapidly innovate programming and policies in real time as a means to adapt to pressing challenges, and in many cases, to maintain existentiality. The financial pressures universities face to provide institutional sustainability may directly impact mission and strategic plans. In fact, the rise of industry influences associated with academic capitalism are at the heart

of the debate of university purpose as a private or public good (Alexander, 2020; Labaree, 1997; Newfield, 2016; Slaughter & Rhoades, 2016).

Also at this time, great emphasis is placed on focusing precious resources on initiatives most directly supporting institutional mission – the intersection of mission and innovation challenges faced in higher education today and for years to come.

"Higher education's future lies in the exercise of human imagination. It can be difficult to think forward to a time when a campus, its various populations of students and staff, its contextual economy, the surrounding geopolitics all change.

The historical imagination, the kind of thinking that lets us grasp other places and times, as well as the sort that suggests lessons for the present and future, is essential.

As we peer over the horizon, our vision powered by imagination, our capacities drawing from learning from across the curriculum, our empathy fired by care and excitement, the conclusion is inescapable. What could be a more appropriate way to rethink higher education?"

- Bryan Alexander, Higher Education Futurist

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