

Mission statements of universities worldwide - Text mining and visualization

Julián David Cortés-Sánchez 

Universidad del Rosario, School of Management, Bogotá (Colombia)

julian.cortes@urosario.edu.co

Received January, 2018

Accepted April, 2018

Abstract

Purpose: To conduct a transnational study of universities' mission statements (MS) through content analysis by identifying characteristics related to language (e.g., number of words, the most and least frequently used words) and if those characteristics are related to universities' location, size, focus, research output, age band, and status.

Design/methodology: Content analysis of 248 MS from universities worldwide using Voyant Tools.

Findings: The main results show: (1) a necessity for self-awareness by the universities; (2) an overall emphasis on society and students, as stakeholders; (3) there were no discernible similarities in keywords used between firms and universities; (4) MS tend to be longer in universities from Asia and shorter from Europe; (5) the absence of quantitative elements into MS (e.g. number of new students enrolled); (6) small universities prioritized knowledge over research; (7) the youngest universities tend to use more of the least frequently used words; (8) collaboration was a barely mentioned term, although the pre-eminence of research and the dominance of groups in knowledge is now a global trend; (9) the youngest universities tend to use more of the least frequently used words; (10) public universities emphasized individuals (i.e., students) and private universities emphasized education as a whole; and (11) the private sector has a noticeable interest in the society which contrasts with the public sector's focus on community.

Research limitations/implications: Subsamples of certain regions should be more inclusive in further studies. Considering that the mean sample of MS studies was 89.6, this study used a sample more than two times larger. Although, both African (4) and Latin American (5) subsamples were not significant compared with European (94) or North American (79) subsamples. Further studies should consider a more-inclusive sampling than the QS world university ranking.

Practical implications: University planning offices can use these results and the digital database to construct a global outlook on MS trends or uncommonly used words to define the purpose of their university and future course of action, embrace an overall isomorphism, or seek a distinctive strategy to differentiate their MS from others. In addition, this research can be used by strategic planning scholars to conduct regionally or nationally focused studies.

Social implications: Universities' MS serve as public pronouncements of their purpose, ambition, and values. In this study, we present and analyze the contents of those purposes, in which mission-oriented universities, some of them global influencers, seek to perform in multiple levels of importance for every country (i.e., education, research, and services with both private and public sectors, and the community).

Originality/value: Most of the previous studies have been restricted to national contexts and based on reduced samples with no open access digital data. In this study, we consider a wide sample of universities from Europe, North America, Asia, and Oceania. We also considered both Latin America and Africa in a strictly exploratory fashion due to sample restriction and delivered a digital open access database of MS from those universities.

Keywords: Mission statements, Planning, Universities, Content analysis

Jel Codes: I23, O32, O57

To cite this article:

Cortés Sánchez, J.D. (2018). Mission statements of universities worldwide - Text mining and visualization. *Intangible Capital*, 14(4), 584-603. <https://doi.org/10.3926/ic.1258>

1. Introduction

Strategic planning is now a ubiquitous practice in private, public and nonprofit organizations, as the abundant evidence regarding its implementations shows that it works, in some cases extremely well (Bryson, 2010). The backbone tool of any strategic plan is the mission statements (MS) (Bart, 2001) as it contributes to guide strategic planning, defines the organization's scope of business operations/activities, provides a common purpose/direction, promotes a sense of shared expectations, and guides leadership styles (Baetz & Bart, 1996). The engagement of the higher education sector in the implementation of MS dates to the early 1980s (Davies & Glaister, 1997; Kotler & Murphy, 1981). Since then, scholars on the topic have emphasized the relationships between MS content (Cochran & David, 1986), overall objectives (Firmin & Gilson, 2010), institutional status (i.e., private or public) (Morphew & Hartley, 2006) and external factors (e.g., private sector or community) (Seeber, Barberio, Huisman & Mampaey, 2017). Hence, strategic planning and MS development process has a direct and strong influence on institutional policies for internal or external purposes, strategic programs, operational goals, and performance indicators (de Lourdes Machado, Farhangmehr & Taylor, 2004).

The English-language literature on MS and its implementation on universities has been growing, especially since the mid-2000s. Yet the first study, to our knowledge, on MS, its content, and its effect on corporate communication in business schools was conducted by Cochran and David in the 80s (Cochran & David, 1986). Since then, research has been focused on MS in individual academic units (Orwig & Finney, 2007), their effect on universities' identity (Firmin & Gilson, 2010), their relation with the university's environment (Kuenssberg, 2011), and their difference among private and public universities (Efe & Ozer, 2015). The majority of those studies were focused on individual countries and universities from the global North (i.e., US, Germany and UK), and the average of the sample was 89.6 observations. Therefore, we considered that there is a disengagement from the global South, the absence of transnational studies, and no discernible open access digital dataset for replications or triangulations in further studies.

Considering the advances pinpointed in the literature, this study has three aims. First, to conduct one of the first transnational studies on MS through content analysis. Second, to amplify the richness of the sample by a factor of two. And third, to provide an open access digital dataset for MS from universities worldwide. For achieving these aims, we used the Quacquarelli Symonds' (QS) world university ranking as a list of institutions in which we focused efforts in MS search and collection among universities' website.

The use of QS rankings is not free of controversy on using subjective and biased weightings, unequal distribution of returned questionnaires, some universities were evaluated only by domestic respondents, quite a few universities exhibit the same indicator scores or even full scores, rendering the assessment questionable, among others critics (Dobrota, Bulajic Bornmann & Jeremic, 2016; Huang, 2012). Nevertheless, when comparing the six global rankings, including QS, results indicate that although each ranking system applies a different methodology, there are from a moderate to high correlation among them (Shehatta & Mahmood, 2016). In

addition, other rankings such as the Academic Ranking of World Universities (ARWU) use several criteria that do not quite fit the global South university context. For instance, the ARWU criteria of “quality of education” is measured as “Alumni of an institution winning Nobel Prizes and Fields Medals”. For instance, two individuals have won the Nobel Prize in Colombia: Gabriel Garcia Marquez (who died in 2014) and Juan Manuel Santos (president in office). Neither of them have held a tenured professorship in any university. In the case of the Fields Medal, the mathematician Artur Avila Cordeiro de Melo was the first and only Latin American to win such award in 2014. Does it mean that there is no “quality of education” in any Latin America university? In contrast, the QS ranking is more admissible in their criteria for universities in developing countries (see Appendix 1).

After this introduction, we present a literature review followed by a content analysis of 248 MS from universities ranked in the 2016 QS world university ranking. Voyant Tools software was used for the content analysis, which was conducted in groups of universities differentiated by continent, size, focus, research level, age band, and status. We then present the results and discussion. Finally, we present the conclusions and limitations of this study.

2. Literature review

The English-language literature on MS can be divided into three strands: seminal, mainstream, and critical. Most of the literature-corpus comes from business, management and accounting fields, as an anticipated conclusion after reviewing the most discussed studies. After a comprehensive literature review, then we focused exclusively on universities’ MS English-language literature.

2.1. Seminal

The objectives of the seminal strand are twofold: to advance the understanding of the purpose of a business through reflecting on its philosophy and comprehend the relationship between MS and performance. From a philosophical perspective, Jones (1960) proposed a framework to guide decision-making for businesspeople and organizations that comprised two ideas: long-term goals and the sets of means to achieving these goals. Jones (1960) argued that an organization’s permanent goal should be to further the welfare of an organization’s beneficiaries. In the same year, Theodore Levitt (1960) proposed a MS strategy school (Campbell & Yeung, 1991). Levitt (1960) argued that several companies incorrectly define their business because of a narrow scope (e.g., Apple’s core values and definition was not to be a company that produces computers, but a company that produces high-tech products for people who passionately want to change the world). Moreover, Levitt (1960) maintained that a CEO, “[M]ust set the company’s style, its direction, and its goals” (p. 149).

Later, Drucker (1973) was aware of the importance of a MS in business strategic planning; however, he also was aware of its potential for misunderstanding (Bartkus, Glassman & McAfee, 2000). To resolve this issue, Drucker (1973) argued that defining a MS was equivalent to answering the questions: what is our business? And what should it be? Regardless of the restrained use of MS in the late 1980s (Leuthesser & Kohli, 1997), these reflections led to the development of the first empirical studies to analyze the contents of several MS and their relationship to performance. After analyzing the content of a few corporate MS, Pearce (1982) suggested that eight key components could be identified (i.e., target customers, basic products or services, primary markets, principal technology, concern for survival, growth and profitability, company philosophy, company self-concept and concern for public image). By means of content analysis using Pearce’s eight key components and the Fog Index for readability, Cochran and David (1986) concluded that MS should improve the readability and tone of the organization and its image. Anticipating Campbell’s (1989) reasoning on the importance of MS for organizations to outperform those that do not have one (Figure 1), Pearce and David (1987) argued that higher performing firms have a comparatively more comprehensive MS considering Pearce’s (1982) key components, and that corporate philosophy, self-concept and public image were essential components to include in a MS.



Figure 1. What is a mission? Adapted from Campbell (1989, pp. 4)

2.2. Mainstream

The objectives of the mainstream strand are threefold: to refine the methods of MS content analysis, examine the relationship or effect of a MS with performance, and improve the sample limitations of seminal empirical studies. Christopher Bart is one of the most prolific scholars in this strand and in MS topics in general. Ten years after Cochran and David's (1986) findings, Baetz and Bart (1996) presented a "typical" MS. It contained one financial objective (or none at all), one or two non-financial objectives, one value, belief or philosophy statement, the organization's definition of success, the organization's number one priority, a definition of the organization's strategy and a reference to one stakeholder. Contrary to what was expected, Bart and Baetz (1998) found mixed results on MS effects as there was no significant difference between firms with or without MS (in terms of return on assets) and a tenuous relationship between MS components and several financial measures among industrial and consumer goods firms (Bart, 1996a). Nevertheless, they also found a significant correlation between the satisfaction with MS development processes and its influence on employees' behaviors (Bart, 1996, 1996a).

When comparing different industrial sectors (i.e., manufacturing and high-tech MS) major differences in MS content were noticeable (Bart, 1996). In spite of the MS content differences between industries, MS showed a positive correlation with performance in hospitals, as long as the MS contained components such as a distinctive competence/strength, specific patients, unique identity and concern for satisfying patients (Bart & Tabone, 1999). Regardless of the "typical" MS stated back in 1996, Bart (1997b) then considered that a MS should be sufficiently general in its orientation and that quantitative objectives should be used in other documents or spaces, as financial objectives do not inspire employees considerably. In the line of MS and inspiration, a comprehensive MS also showed multiple emotional and psychological benefits (Bart, 1997a).

In time, several key MS components were added to the framework of the ideal MS and its positive effects on performance. On the one hand, the key MS components added were: major inspirations, benefactors, competitive orientation and business definition. On the other hand, the performance measures positive influence by MS key words were: behavioral, financial, mission achievement measures and intellectual capital indicators (Bart & Bontis, 2003; Bart & Hupfer, 2004). In the early 2000s, alongside Internet's scaling, there was the emergence of a novel corporate communication strategy in posting the MS on the corporate website which considerably eased the diffusion of MS to external stakeholders (Bart, 2001). Similarly, a key remark on an

effective corporate communication strategy, is that MS has to be written as a narrative or history to reach a broad audience and produce an emotional commitment to the organization (Bart & Hupfer, 2004).

Alongside this fruitful research agenda, several studies also contributed to the mainstream strand. Weiss and Piderit (1999) found a positive impact on the adoption of MS and its relation to performance in 304 public schools in the US by performing the first robust impact evaluation reported in the literature to our knowledge. This virtue was not found in the UK public agencies during MS implementation (Hyndman & Eden, 2000). By comparison with the private sector, CEOs from the UK had positive perceptions of the importance of a formal MS to improve performance, hence there was a widespread MS implementation in SMEs. Additional evidence from Netherlands (Sidhu, 2003), US (Williams, 2008) and Japan (Hirota, Kubo, Miyajima, Hong & Park, 2010) supports the MS-performance relationship. For instance, firms with strong MS value their organizational capital and tend to adopt policies to preserve it (Hirota et al., 2010). One of the few transnational studies also found a positive relationship between MS components as a business rule (e.g., being responsible to the society) and financial performance in firms from Europe, Japan, and the US (Bartkus, Glassman & McAfee, 2005). While the three main MS content priorities in the UK were: long-term profit, survival and growth (Analoui & Karami, 2002), the main content priorities in Slovenian (Babnik, Breznik, Dermol & Sirca, 2014) and Turkish (Duygulu, Ozeren, Isildar & Apolloni, 2016) firms were: stakeholder concerns, orientation towards stability, co-operation and innovation, development and growth, philosophy and values, and public image. Another MS component found in firms from the US and Turkish, was a trend to global influence/operations and going green, mainly because of the influence of the Internet (King, Case & Premo, 2010; Yozgat & Karatas, 2011). The positive relation between MS and performance does not exclusively belong to the public or private sector. Patel, Booker, Ramos and Bart (2015) also endorse this relation based on findings from NGOs from 30 countries.

All those listed findings appear to be too diverse and intricate to synthesize. To clarify, Dasmidt, Prinzie and Decramer (2011) conducted a meta-analysis arguing that MS do matter and that they have a measurable association with financial performance. Although that meta-analysis only used 14 studies (e.g., the most-cited meta-analysis on business, management and accounting used 52 studies (Orlitzky, Schmidt & Rynes, 2003)). Consequently, Dasmidt et al. (2011) asked whether it was, “Time to shelve the discussion? Not necessarily” (pp. 479).

2.3. Critical

The objective of the critical strand was to controvert the importance and usefulness of MS to organizational planning and performance. Ireland and Hitt (1992) listed nine reasons why companies might not employ a MS (i.e., no one would read it, too much effort or work, impractical, an academic exercise, do not need it, would reveal too much confidential information, lack of generalist skills to develop, operational matters come first, and comfort with the status quo). However, the same study concluded that MS stimulated organization members to engage in information conveyance and convergence processes and motivation. In fact, Bart (1997b) identified statements regarding MS such as: mission impossible; mission ambiguity; mission dissatisfaction; wrong mission; development process dissatisfaction; no influence over behavior; and no involvement and improper use. Overall, “The vast majority of MS are not worth the paper they are written on and should not be taken with any degree of seriousness” (Bart, 1997b, pp. 12). Nevertheless, the bountiful evidence produced by Bart and colleagues after 1997 refute these anecdotes as noted in the mainstream strand section. One of the few studies reporting no correlation between MS and performance was conducted by O’Gorman and Doran (1999); however, the study sample reduced observations (n=64) and it was conducted only in Irish SMEs. In sum, the argumentative corpus of the critical strand is reduced to reflexive considerations in some cases and lacks empirical evidence in other cases.

2.4. Mission statements in universities

When focusing on MS in universities, the literature has been enriching the mainstream strand. While a MS began to be considered as a corner-stone of the emerging strategic planning for the higher education field in the 1980s (Kotler & Murphy, 1981), Cochran and David (1986) were one of the first researchers to consider MS, its

content, and its effect on corporate communications in business schools. Other studies were conducted afterwards on different types of academic units such as AACSB-accredited business schools (Orwig & Finney, 2007), technology transfer offices (Fitzgerald & Cunningham, 2016) and ophthalmology departments (Wedrich et al., 2012). In the mid-2000s, studying the MS of universities began to receive more attention. Morpew and Hartley (2006) found that the institutional status (public vs. private) predicts MS components as few elements appear more frequently than others (e.g. commitment to diversity) and there was a prevalence of elements related specifically to service. Atkinson (2008) reported that universities' MS operate as cultural-cognitive indicators, or ideational indicators of group solidarity, shared beliefs, and human agreement. Hence, are these cultural-cognitive indicators converting in MS within a given country? Conversely, are universities using their MS to differentiate themselves from other organizations?

On the former, Kuenssberg (2011) claimed that universities' MS convey an overall impression of sameness rather than distinctiveness and a lack of focus on some key areas (e.g., the student experience). Along similar lines, Hladchenko (2016) traced isomorphism both claiming education and research in MS from Ukraine. Also, Kosmützky (2012) argued that MS express the tasks that are set for them by the higher education law (i.e. higher education national policy) and supplement these missions with distinct images. On the latter, Hladchenko (2013) found that universities' MS must be developed in an open discussion with the participation of the members of university. In the same light, Kosmützky and Krücken (2015) concluded that MS allow universities to position themselves in particular niches and competitive groups.

Beyond those former inquiries, universities are not islands. Current MS are marked by a need for reassuring their legitimacy and the demands of a growing tertiary market and a constantly changing economic, political, historical, and cultural background, which also shapes MS (Efe & Ozer, 2015) as they adopt claims similar to universities belonging to the same organizational form while differentiating from geographically closer universities to reduce competitive overlap (Seeber et al., 2017).

To synthesize, the majority of studies were conducted primarily in the US and Germany. Their common overall objective was to understand the MS content and its effect on universities' identity, behavior and their capacity to respond to the social, political and economic environment. The methodology used in all studies reviewed above was a content or textual analysis. The mean of the samples was 89.6. Two of the concluding remarks gave an overall impression of sameness rather than distinctiveness in the MS analyzed (i.e., isomorphism) and a distinctiveness of MS in cases where universities shared geographic proximity to increase their differentiation in the local market.

3. Methodology

3.1. Data

The base dataset used to identify a feasible list of universities for analysis was the 2016 QS world university ranking, which evaluates universities based on six metrics: academic reputation; employer reputation; faculty/student ratio; citations per faculty; international faculty ratio; and international student ratio (Appendix 1 presents the description for each metric). Considering that the first two metrics add up to 50% of the overall score and that both metrics are based on a survey completed by 70,000 individuals in the higher education community and 30,000 employers, respectively (QS, 2017) universities without these assessments were not considered. We explored each university's websites to locate their MS, whether in a given tab or the strategic/corporate plans. The MS gathered were explicitly mentioned as "mission" or "mission statement". Titles such as "values", "purpose" or "vision", for instance, were not considered due to a more precise data gathering. Only MS in English were considered due to language standardization. Consequently, the sample was reduced from 400 to 248 MS. Table 1 presents the number of universities and MS by continent (see Appendix 2 for a complete list of countries). Table 2 presents the number and percentage of the universities by size, focus, research, age band and status. A permanent link to the databases is available in the following link (<https://goo.gl/6PgTh1>) or QR code.



Key	Continent	# Us
EU	Europe	94 (38%)
NA	North America	79 (31%)
AS	Asia	48 (19%)
OC	Oceania	18 (7%)
LA	Latin America	5 (2%)
AF	Africa	4 (1%)
Total # MS		248

Table 1. Number of universities by continent and number of MS by country. By the author based on QS, 2016, and university websites

Metric	Key	Meaning	#Us	%
Size	S	Small	6	2%
	M	Medium	47	19%
	L	Large	140	56%
	XL	Extra-large	55	22%
Focus	FC	Full comprehensive	160	65%
	CO	Comprehensive	71	29%
	FO	Focused	14	6%
	SP	Specialist	3	1%
Research	MD	Medium	4	2%
	HI	High	30	12%
	VH	Very-high	214	86%
Age band	5	>100 years	162	65%
	4	50-100 years	53	21%
	3	25-50 years	26	10%
	2	10-25 years	7	3%
Status	A	Public	207	83%
	B	Private	41	17%

Table 2. Number and percentage of universities by size, focus, research, age band and status. By the author based on QS, 2016, and university websites

3.2. Content analysis

Voyant Tools was used for content analysis. Voyant Tools (Sinclair & Rockwell, 2015) is an open-source web-based text reading and analysis environment that uses more than 20 visualization tools to analyze a text corpus, which allows to users to investigate patterns of words/concepts and to explore and visualize large corpus of text systemically, exercises that may be difficult to perform by simply reading. Studies in which Voyant Tools has been used for research, are recently being published in peer-reviewed publications (Boyle & Hall, 2016). Voyant Tools is an open-source project and the code is available through GitHub (For code details see GitHub, n.d.).

The content analyses implemented in MS consist of the frequency of terms and their ratio. The frequency of terms consists of determining the number of times a word is mentioned in a corpus. The ratio of terms depicts

the changes in the frequency of words included in a corpus where each analyzed group is represented in a vertical column where the highest frequency words are plotted. The x-axis displays the group titles and the y-axis displays the relative frequencies.

4. Results and discussion

The results of the content analyses include ratio of terms (i.e., a visualization that depicts the changes in the frequency of words included in a corpus where each analyzed group is represented in a vertical column with the highest frequency words plotted, the bottom x-axis displays the group titles and the left y-axis displays the relative frequencies); the average number of words per sentence; and the most and least frequently used words. Content analyses were conducted for MS in an overall worldwide analysis and by continent, size, focus, research, age band, and status. It must be said in advance, that the sample of MS from Latin American and African universities (n=9 combined) should be interpreted as a strictly exploratory analysis due to a restricted presence among the top 400 universities into de QS ranking.

4.1. Overall analysis

The overall MS analysis indicates that the five most frequently used words were: *university*, *research*, *knowledge*, *students*, and *education*; and the five least frequently used words were: *educational*, *institutions*, *responsibility*, *state*, and *support* (Figure 2 and Table 3). Universities needed to express their self-awareness, to mention themselves in their MS (i.e., company self-concept (Pearce, 1982)). The word frequencies of *knowledge*, *education* and *stakeholders* (i.e., society and students) were consistent with the findings of both Firmin and Gilson (2010) -regarding society- and Hladchenko (2013) -regarding research and teaching- (Table 3). Considering the words found by Ingenhoff and Fuhrer (2010) and Orlitzky, Louche, Gond and Chapple (2017) on private organizations', no discernible similarities were observed between words used by private companies and universities. These findings support the overall conclusion argued in the literature review, i.e., overall sameness rather than distinctiveness in MS in universities (Kuenssberg, 2011), particularly in promoting *education* and *research* (Hladchenko, 2016).



Figure 2. Collocation graph of MS (Overall). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence		27.7
Total words		29,447
Most frequent words	University	501
	Research	461
	Knowledge	230
	Students	196
	Education	185
	Teaching	158
	World	148
	Society	131
	Academic	121
Least frequent words	Learning	118
	Educational	39
	Institutions	39
	Responsibility	39
	State	39
	Support	39
	Activities	38

Table 3. Average number of words per sentence and word frequency (Overall). By the author based on QS, 2016, and university websites

4.2. Continents

Two noteworthy findings were observed in MS analyses by continent. First, the longest MS were from Asian universities and the shortest were from European universities, which concurs with two results identified by Bart and Hupfer (2004) (Table 4). That is, MS are dependent from their institutional or geographical environment, and some MS were written as a narrative to reach a broader audience and cultivate an emotional commitment to the organization. For instance, the MS of the National Taiwan University (NTU) is:

“To provide an excellent environment for students and faculty to learn and innovate, to offer leaders of society and researchers the most innovative knowledge, and to raise the level of Taiwan's scholarship, assist national economic development, and resolve major problems of establishing the prospect of sustained development for humanity. Broadly embracing top professionals from around the world, and dedicated to our core philosophy of excellence in education, excellence in research, and social concern, we aim to make NTU into a renowned bastion of education and research in fulfilling our vision to be ranked "the pinnacle of the Chinese and the first-rate in the world.”

On the other hand, when comparing MS from Europe, examples such as: “Technology for people” from the *Technische Universität Wien*, showed off their brevity. Brevity can be considered as a virtue and a proven attribute that affects an organization's performance and internal image (Baetz & Bart, 1996; Baum, Locke & Kirkpatrick, 1998; Cochran & David, 1986). Second, universities from each region showed differentiated words (Figure 3). Asia, where *technology* was a differentiated word, is a well-known region where the higher education system pushed technological development forward very rapidly. In the 60s, the number of patent applications by residents in South Korea was 545 meanwhile in United States was 63,090. Fifty-five years later, South Korea now produces 167,275 and United States 288,335, more than 300 times 60s' production, and 68% of the current United States (The World Bank, 2015). Regarding quantitative elements, barely none were adopted. As an exception, the Arizona State University explicitly added quantitative objectives to its MS:

“[...] Improve freshmen persistence to 90% [...] Enhance university graduation rate to 80% and more than 32,000 graduates [...] Enroll 100,000 online and distance education degree seeking students [...] Attain national standing in academic quality for each college and school (top 5%) [...] Establish ASU as a leading global center for interdisciplinary research, discovery and development by 2025 [...] Enhance research competitiveness to more than \$815 million in annual research expenditures...”

The exclusion of quantitative objectives supports Bart's (1997a) claim. These results also support Efe and Ozer's (2015) conclusion on the importance of economic, political, historical, and cultural paths in shaping MS.

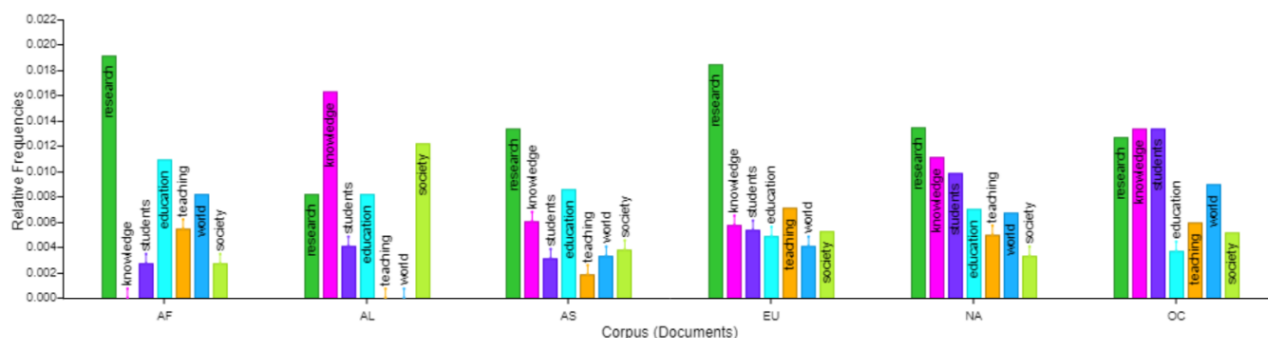


Figure 3. Ratio of terms for MS (Continents). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence	Higher	35.8 (AS)
	Lower	23.3 (EU)
Differentiated words	AF	Relevance
	AL	Universidad
	AS	Technology
	EU	University
	NA	Knowledge
	OC	Communities

Table 4. Average number of words per sentence and differentiated words in MS (Continents). By the author, based on QS, 2016, and university websites

4.3. Size

Three remarkable findings were observed in MS analyses by size. First, as foreseen, extra-large-, large- and medium-sized universities developed a *research* priority while small universities emphasized *knowledge* (Figure 4). Second, the next priority in MS of medium-sized universities was *education*. Therefore, medium-sized universities can be seen in a transition phase from being knowledge-based towards research-based universities. Third, *collaboration* is a word barely mentioned. In contrast, *co-operation* was one of the predominant concepts identified in Slovenian organization’s MS (Babnik et al., 2014). Furthermore, a formal inclusion of the word *research* in the MS seems irrelevant (Table 5). Over the past 45 years, the production of knowledge has been dominated by groups not individuals: the average number of authors per paper has increased from 1.9 to 3.5 (Wuchty, Jones, B., & Uzzi, 2007).

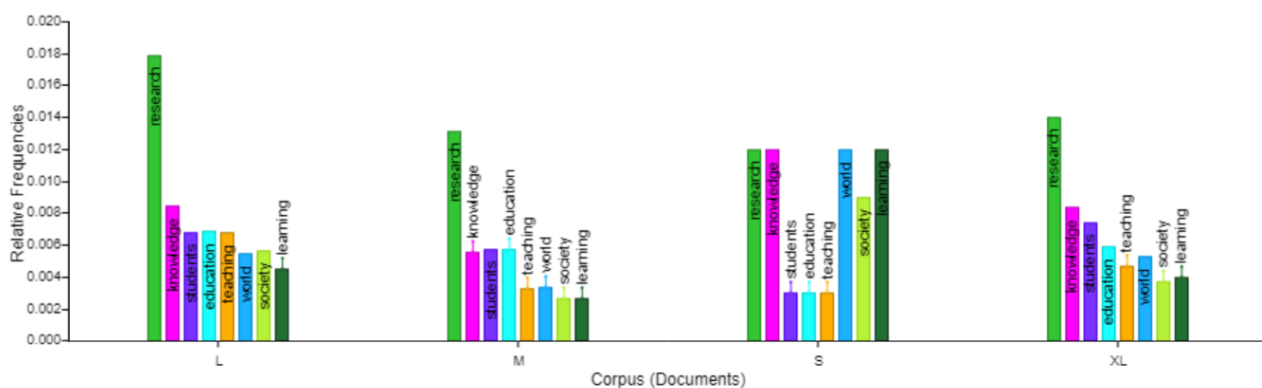


Figure 4. Ratio of terms for MS (Size). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence	Higher	33.4 (S)
	Lower	25.4 (XL)
Differentiated words	XL	Community
	L	Community
	M	International
	S	Workforce

Table 5. Average number of words per sentence and differentiated words in MS (Size). By the author, based on QS, 2016, and university websites

4.4. Focus

In the focus group sample, universities developed a MS with defined priorities such as *society, teaching, education* (as in the comprehensive group) and *students* (Figure 5). Considering that the sample is composed primarily (98%) of universities in both groups, i.e., high and very high research, the analysis of research subsample is essentially the same as the overall analysis (Figure 6 and Table 7).

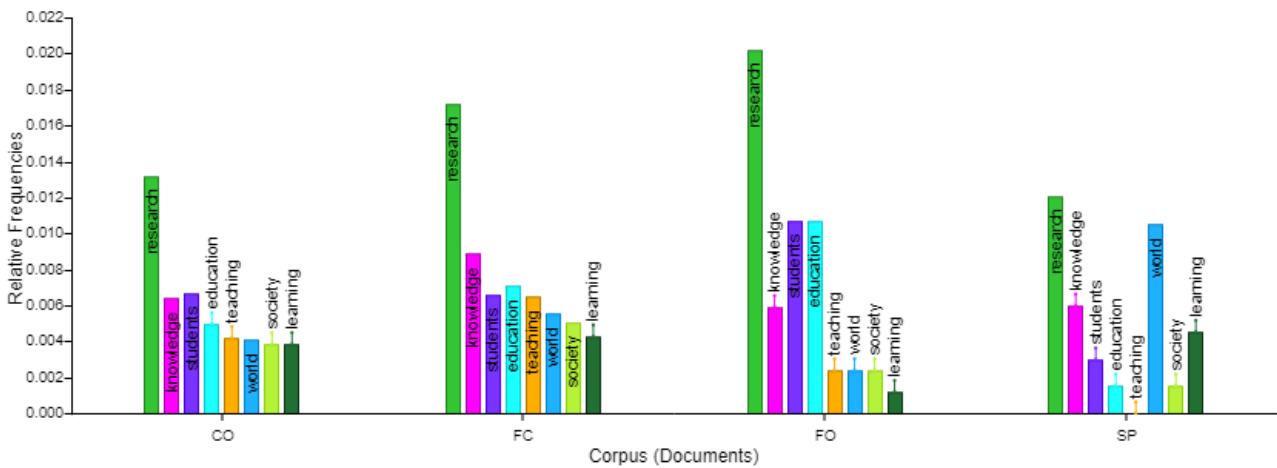


Figure 5. Ratio of terms for MS (Focus). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence	Higher	44.4 (FO)
	Lower	26.3 (FC)
Differentiated words	CO	University
	FC	University
	FO	Provide
	SP	Studies

Table 6. Average number of words per sentence and differentiated words in MS (Focus). By the author, based on QS, 2016, and university

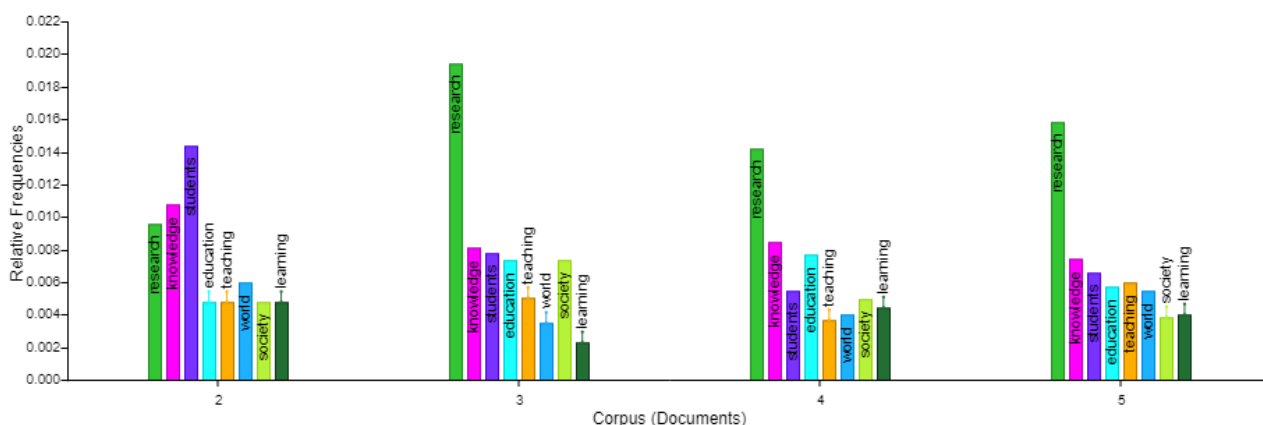


Figure 6. Ratio of terms for MS (Research). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence	Higher	34.8 (MD)
	Lower	27.4 (VH)
Differentiated words	HI	University
	MD	Highly
	VH	University

Table 7. Average number of words per sentence and differentiated words in MS (Research). By the author, based on QS, 2016, and university websites

4.5. Age band

Sixty-five per cent of universities in the sample are more than 100 years old. No longitudinal evidence is available in this study on the evolution of components of MS, but we can safely assume that the oldest universities were early in the use of words such as *research*, *knowledge* and *students* or *education*, and their younger counterparts used these words as a point of reference and adopted them by default (Figure 7 – Table 8). However, the youngest universities (10–50 years old) frequently used words regarding *stakeholders* (i.e., *society*), *teaching* and *education*, which were actually the least frequently used among the most frequently used words, as observed by Babnik et al. (2014) in Slovenian firms.

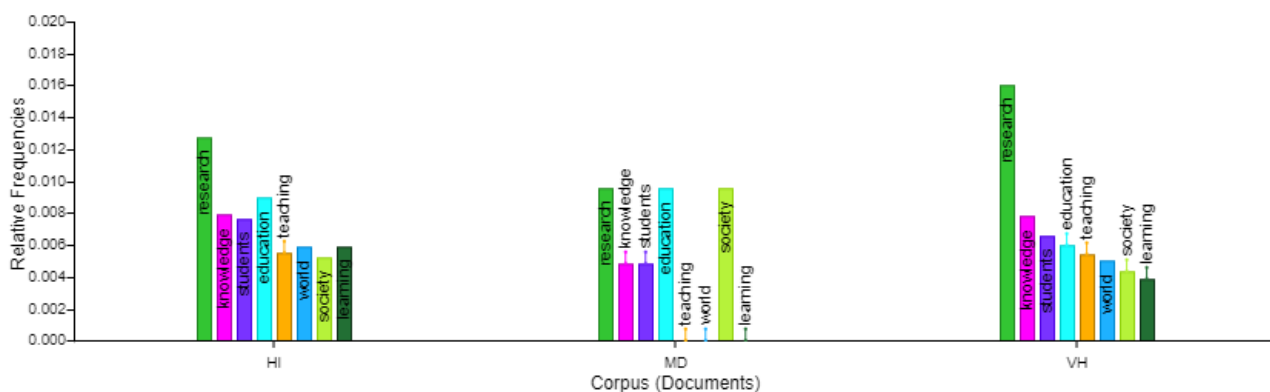


Figure 7. Ratio of terms for MS (Age band). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence	Higher	35.5 (4)
	Lower	23.1 (2)
Differentiated words	2	Community
	3	Scientific
	4	Country
	5	International

Table 8. Average number of words per sentence and differentiated words in MS (Age band). By the author, based on QS, 2016, and university websites

4.6. Status

The status of the majority of universities is public (83%). When their MS were compared with the private sector and putting aside the words *research*, *university* and *knowledge*, the highest priority term for public universities was *students* (Figure 8). However, *education* is a more-noticeable term in the private sector than in the public sector. The private sector noticeably focuses on *education* as a whole, while the public sector focuses on *individuals*. In addition, the private sector has a noticeable interest in *society* (global scope), which contrasts with the public sector's focus on *community* (local scope) (Table 9). According to Kosmützky and Krücken (2015) MS allow universities to position themselves in particular niches/competitive groups, hence MS from public universities seem to be shaped to function accordingly to the higher education national/local laws/policies (Kosmützky, 2012) in favor of local priorities. In contraposition from MS from private universities which seems to be impacted by the demands of a growing tertiary education market (i.e., globalization) (Efe & Ozer, 2015).

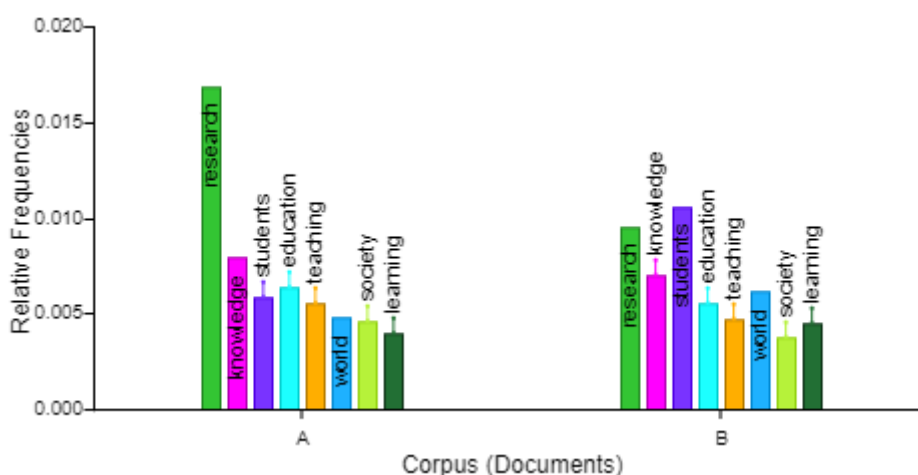


Figure 8. Ratio of terms for MS (Status). By the author, based on QS, 2016, and university websites, and processed in Voyant Tools

Average of words per sentence	Higher	27.9 (B)
	Lower	27.7 (A)
Differentiated words	A	Leading
	A	Working
	A	Researchers
	B	Welcome
	B	Tolerance
	B	Thoughtful

Table 9. Average number of words per sentence and differentiated words in MS (Status). By the author, based on QS, 2016, and university websites

5. Conclusions

MS is a ubiquitous strategic planning instruments adopted worldwide. It determines the actual purpose and future course of action for organizations, and the related internal or external processes. The extensive literature on MS shows a discernible consensus on the importance of coordinating and measuring organizational performance, public or internal image, employee behavior and commitment, and value creation among other factors. Despite this advancement, most studies have been conducted at a national level in private organizations located in the global North. When focusing on universities, the literature emphasized MS content analyses at the national level with reduced samples. Based on previous developments, this study presented three main contributions. First, it conducted one of the first transnational studies on universities' MS. Second, it amplified the richness of the sample by a factor of two. And third, it provided an open access digital dataset of MS from universities worldwide.

Among the main findings, universities showed a necessity for self-awareness or to mention themselves on their own MS. MS could be more punctual and shorter if redundant claims are omitted (i.e., “the mission of this university, is...”). MS showed an overall emphasis on society and students, as stakeholders. The former was remarked in MS from private universities which made emphasis in society and education (global and conceptual focus), in contrasts with the public sector's focus on community and students (local and individual scope). It seems that the MS from public universities are strongly shaped by national/local policies which are committed to national/local priorities. On the other hand, society and education appeared to be more global terms which encompass the demands of a growing higher education market. MS are also shaped by current university's capacity, as small universities prioritized knowledge (applied research) over research (basic research). Yet there were no discernible similarities in words used in MS between private organizations and universities. Therefore, universities are not apathetical from their surrounding but still preserve their independency from a fully-corporative purpose. These differences between particular economic, political or cultural contexts were also found in continent subsamples, which showed that MS tend to be longer in universities from Asia and shorter from Europe, or the absence of quantitative indicators (e.g., number of new students enrolled). As final remark, collaboration was a barely mentioned term, although the pre-eminence of research and the dominance of groups over individuals in knowledge production is a more effective external effect than a formal mention in universities' MS.

University planning offices can use these results and the digital database to construct a global outlook on MS trends or uncommonly used words to define the purpose of their university and future course of action, embrace an overall isomorphism, or seek a distinctive strategy to differentiate their institution from others. In addition, this research can be used by strategic planning scholars to conduct regionally or nationally focused studies.

The limitations of this study are the samples from some regions. Considering that the mean sample of MS studies was 89.6, this study used a sample more than two times larger. Although, the African (4) and Latin-American (5) samples were not significant compared with European (94) or North American (79) subsamples. Thus, further studies should consider a more inclusive ranking in research databases than the QS world university ranking.

Acknowledgments

The author would like to thank to Valeria Andrea Rodriguez-Moreno and Manuel Ricardo Rodriguez-Garzon for their research assistance, and to Myriam Liliana Rivera-Virguez for her advice. Also, thanks to Dr. Julia Jensen for her proofreading assistance.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

References

- Analoui, F., & Karami, A. (2002). CEOs and development of the meaningful mission statement. *Corporate Governance*, 2 (3), 13-20. <https://doi.org/10.1108/14720700210440044>
- Atkinson, T. (2008). Textual mapping of imitation and intertextuality in college and university mission statements: A new institutional perspective. *Semiotica*, 172, 361-387. <https://doi.org/10.1515/SEMI.2008.104>
- Babnik, K., Breznik, K., Dermol, V., & Sirca, N. (2014). The mission statement: organizational culture perspective. *Industrial Management & Data Systems*, 4(612-627), 114. <https://doi.org/10.1108/IMDS-10-2013-0455>
- Baetz, M., & Bart, C. (1996). Developing mission statements which work. *Long Range Planning*, 29(4), 526-533. [https://doi.org/10.1016/0024-6301\(96\)00044-1](https://doi.org/10.1016/0024-6301(96)00044-1)
- Bart, C. (1996). High tech firms: Does mission matter?. *Journal of High Technology Management Research*, 7(2), 209-225. [https://doi.org/10.1016/S1047-8310\(96\)90005-X](https://doi.org/10.1016/S1047-8310(96)90005-X)
- Bart, C. (1996a). The impact of mission on firm innovativeness. *International Journal of Technology Management*, 11(3/4), 479-493.
- Bart, C. (1997a). Industrial firms and the power of mission. *Industrial Marketing Management*, 26, 371-383. [https://doi.org/10.1016/S0019-8501\(96\)00146-0](https://doi.org/10.1016/S0019-8501(96)00146-0)
- Bart, C. (1997b). Sex, lies, and mission statements. *Business Horizons*, 40(6), 9-18. [https://doi.org/10.1016/S0007-6813\(97\)90062-8](https://doi.org/10.1016/S0007-6813(97)90062-8)
- Bart, C. (2001). Exploring the application of mission statements on the World Wide Web. *Internet Research*, 11(4), 360-369. <https://doi.org/10.1108/10662240110402812>
- Bart, C., & Baetz, M. (1998). The relationship between mission statements and firm performance: an exploratory study. *Journal of Management Studies*, 35(6), 0022-2380. <https://doi.org/10.1111/1467-6486.00121>
- Bart, C., & Bontis, N. (2003) Distinguishing between the board and management in company mission: Implications for corporate governance. *Journal of Intellectual Capital*, 4(3), 361-381. <https://doi.org/10.1108/14691930310487815>
- Bart, C., & Hupfer, M. (2004) Mission statements in Canadian hospitals. *Journal of Health Organization and Management*, 18(2), 92-110. <https://doi.org/10.1108/14777260410538889>
- Bart, C., & Tabone, J. (1999) Mission statement content and hospital performance in the Canadian not-for-profit health care sector. *Health Care Management Review*, 24(3), 18-29. <https://doi.org/10.1097/00004010-199907000-00003>
- Bartkus, B., Glassman, M., & McAfee, B. (2000). Mission statements: Are they smoke and mirrors?. *Business Horizons*, 43(6), 23-28. [https://doi.org/10.1016/S0007-6813\(00\)80018-X](https://doi.org/10.1016/S0007-6813(00)80018-X)
- Bartkus, B., Glassman, M., & McAfee, B. (2005). Mission statement quality and financial performance. *European Management Journal*, 24(1), 86-94. <https://doi.org/10.1016/j.emj.2005.12.010>
- Baum, J., Locke, E., & Kirkpatrick, S. (1998). A longitudinal study of the relation of vision and vision communication to venture growth in entrepreneurial firms. *Journal of Applied Psychology*, 83(1), 43-54. <https://doi.org/10.1037/0021-9010.83.1.43>
- Boyle, M., & Hall, C. (2016). Teaching Don Quixote in the digital age: Page and screen, visual and tactile. *Hispania*, 99(4), 600-614. <https://doi.org/10.1353/hpn.2016.0106>
- Bryson, J. (2010). The future of public and nonprofit strategic planning in the United States. *Public Administration Review*, 70(1), 255-267. <https://doi.org/10.1111/j.1540-6210.2010.02285.x>

- Campbell, A. (1989). Does your organization need a mission?. *Leadership & Organization Development Journal*, 10(3), 3-9. <https://doi.org/10.1108/EUM0000000001134>
- Campbell, A., & Yeung, S. (1991). Creating a sense of mission. *Long Range Planning*, 24(4), 10-20. [https://doi.org/10.1016/0024-6301\(91\)90002-6](https://doi.org/10.1016/0024-6301(91)90002-6)
- Cochran, D., & David, F. (1986). Communication effectiveness of organizational mission statements. *Journal of Applied Communication Research*, 14(2), 108-118. <https://doi.org/10.1080/00909888609360308>
- Dasmidt, S., Prinzie, A., & Decramer, A. (2011). Looking for the value of mission statements: A meta-analysis of 20 years of research. *Management Decision*, 49(3), 468-483. <https://doi.org/10.1108/00251741111120806>
- Davies, S., & Glaister, K. (1997). Business school mission statements - The bland leading the bland?. *Long Range Planning*, 30(4), 594-604. [https://doi.org/10.1016/S0024-6301\(97\)00038-1](https://doi.org/10.1016/S0024-6301(97)00038-1)
- de Lourdes Machado, M., Farhangmehr, M., & Taylor, J. (2004). The status of strategic planning in Portuguese higher education institutions: Trapping or substance?. *Higher Education Policy*, 17(4), 383-404. <https://doi.org/10.1057/palgrave.hep.8300064>
- Drucker, P. (1973). *Management: Task, responsibilities, practices*. New York: Harper & Row.
- Dobrota, M., Bulajic, M., Bornmann, L., & Jeremic, V. (2016). A new approach to the QS University ranking using the composite I-distance indicator: Uncertainty and sensitivity analyses. *Journal of the Association for Information Science and Technology*, 67(1), 200-211. <https://doi.org/10.1002/asi.23355>
- Duygulu, W., Ozeren, E., Isildar, P., & Apolloni, A. (2016). The sustainable strategy for small and medium sized enterprises: the relationship between mission statements and performance. *Sustainability*, 8(7), 698. <https://doi.org/10.3390/su8070698>
- Efe, I., & Ozer, O. (2015). A corpus-based discourse analysis of the vision and mission statements of universities in Turkey. *Higher Education Research and Development*, 34(6), 1110-1122. <https://doi.org/10.1080/07294360.2015.1070127>
- Firmin, M., & Gilson, K. (2010). Mission statement analysis of CCCU member institutions. *Christian Higher Education*, 9(1), 60-70. <https://doi.org/10.1080/15363750903181922>
- Fitzgerald, C., & Cunningham, J. (2016). Inside the university technology transfer office: Mission statement analysis. *Journal of Technology Transfer*, 41(5), 1235-1246. <https://doi.org/10.1007/s10961-015-9419-6>
- GitHub (n.d.). *Voyant*. Retrieved from: <https://goo.gl/WqUpFk> (Last access date: September 20th, 2017).
- Hirota, S., Kubo, K., Miyajima, H., Hong, P., & Park, Y. (2010). Corporate mission, corporate policies and business outcomes: Evidence from Japan. *Management Decision*, 48(7), 1134-1153. <https://doi.org/10.1108/00251741011068815>
- Hladchenko, M. (2013). Mission statement - A component of the strategic management of university (on the example of German universities). *New Educational Review*, 31 (1), 229-240.
- Hladchenko, M. (2016). The organizational identity of Ukrainian universities as claimed through their mission statements. *Tertiary Education and Management*, 22(4), 376-389. <https://doi.org/10.1080/13583883.2016.1236144>
- Hyndman, N., & Eden, R. (2000). A study of the coordination of mission, objectives and target in UK executive agencies. *Management Accounting Research*, 11(2), 175-191. <https://doi.org/10.1006/mare.2000.0127>
- Huang, M.-H. (2012). Opening the black box of QS world university rankings. *Research Evaluation*, 21(1), 71-78. <https://doi.org/10.1093/reseval/rvr003>
- Ingenhoff, D., & Fuhrer, T. (2010). Positioning and differentiation by using brand personality attributes: Do mission and vision statements contribute to building a unique corporate identity?. *Corporate Communications*, 15(1), 83-101. <https://doi.org/10.1108/13563281011016859>

- Ireland, R., & Hitt, M. (1992). Mission statements: importance, challenge and recommendations for development. *Business Horizons*, 35(3), 34-42. [https://doi.org/10.1016/0007-6813\(92\)90067-J](https://doi.org/10.1016/0007-6813(92)90067-J)
- Jones, M. (1960). Evolving a business philosophy. *Academy of Management Journal*, 3(2), 93-98.
- King, D., Case, C., & Premo, K. (2010). Current mission statement emphasis: Be ethical and go global. *Academy of Strategic Management Journal*, 9(2), 71-87.
- Kosmützky, A. (2012). Between Mission and Market Position: Empirical findings on mission statements of German Higher Education Institutions. *Tertiary Education and Management*, 18(1), 57-77. <https://doi.org/10.1080/13583883.2011.617466>
- Kosmützky, A., & Krücken, G. (2015) Sameness and difference: Analyzing institutional and organizational specificities of universities through mission statements. *International Studies of Management and Organization*, 45(2), 137-149. <https://doi.org/10.1080/00208825.2015.1006013>
- Kotler, P., & Murphy, P. (1981). Strategic planning for higher education. *The Journal of Higher Education*, 52(5), 470-489. <https://doi.org/10.2307/1981836>
- Kuenssberg, S. (2011). The discourse of self-presentation in Scottish university mission statements. *Quality in Higher Education*, 17(3), 279-298. <https://doi.org/10.1080/13538322.2011.625205>
- Leuthesser, L., & Kohli, C. (1997). Corporate identity: The role of mission statements. *Business Horizons*, 40(3), 59-66. [https://doi.org/10.1016/S0007-6813\(97\)90053-7](https://doi.org/10.1016/S0007-6813(97)90053-7)
- Levitt, T. (1960). Marketing myopia. *Harvard Business Review*, July/August, 45-56.
- Morphew, C., & Hartley, M. (2006). Mission statements: A thematic analysis of rhetoric across institutional type. *Journal of Higher Education*, 77(3), 456-471. <https://doi.org/10.1353/jhe.2006.0025>
- O'Gorman, C., & Doran, R. (1999). Mission statements in Small and Medium-Sized Businesses. *Journal of Small Business Management*, 37(4), 56-66.
- Orlitzky, M., Louche, C., Gond, J.-P., & Chapple, W. (2017). Unpacking the Drivers of Corporate Social Performance: A Multilevel, Multistakeholder, and Multimethod Analysis. *Journal of Business Ethics*, 144(1), 21-40. <https://doi.org/10.1007/s10551-015-2822-y>
- Orlitzky, M., Schmidt, F., & Rynes, S. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403-441. <https://doi.org/10.1177/0170840603024003910>
- Orwig, B., & Finney, R. (2007). Analysis of the mission statements of AACSB-accredited schools. *Competitiveness Review*, 17(4), 261-273. <https://doi.org/10.1108/10595420710844343>
- Patel, B., Booker, L., Ramos, H., & Bart, C. (2015) Mission statements and performance in non-profit organizations. *Corporate Governance*, 15(5), 759-774. <https://doi.org/10.1108/CG-07-2015-0098>
- Pearce, J. (1982). The company mission as a strategic tool. *Sloan Management Review*, Spring/1982, 15-24.
- Pearce, J., & David, F. (1987). Corporate mission statements: The bottom line. *Academy of Management Executive*, 1(2), 109-116.
- QS Intelligence Unit (2016). *QS Classification*. Retrieved from: <https://goo.gl/466QAB> (Last access date: September 20th, 2017).
- QS Intelligence Unit (2017). *Methodology*. Retrieved from: <https://goo.gl/wV43Sd> (Last access date: September 20th, 2017).
- Seeber, M., Barberio, V., Huisman, J., & Mampaey, J. (2017). *Factors affecting the content of universities' mission statements: An analysis of the United Kingdom higher education system*. *Studies in Higher Education*. Article in Press. <https://doi.org/10.1080/03075079.2017.1349743>
- Shehatta, I., & Mahmood, K. (2016). Correlation among top 100 universities in the major six global rankings: Policy implications. *Scientometrics*, 109(2), 1231-1254. <https://doi.org/10.1007/s11192-016-2065-4>

- Sidhu, J. (2003). Mission statements: Is it time to shelve them?. *European Management Journal*, 21(4), 439-446. [https://doi.org/10.1016/S0263-2373\(03\)00072-0](https://doi.org/10.1016/S0263-2373(03)00072-0)
- Sinclair, S., & Rockwell, G. (2015). Text Analysis and Visualization: Making meaning count. In: S. Schreibman, R. Siemens & J. Unsworth (Eds.), *A New Companion to Digital Humanities* (pp. 274–290). Wiley Blackwell; Malden, MA. <https://doi.org/10.1002/9781118680605.ch19>
- The World Bank (2015). Patent applications, residents. Retrieved from: <https://goo.gl/21CqRR> (Last access date: September 20th, 2017).
- Wedrich, A., Langmann, G., Klug, U., Langmann, A., Faschinger, C., Wohlfart, C., et al. (2012). Development and implementation of a mission statement at the University Department of Ophthalmology Graz. *Spektrum Der Augenheilkunde*, 26(4), 212-220. <https://doi.org/10.1007/s00717-012-0111-z>
- Weiss, J., & Piderit, S. (1999). The value of mission statements in public agencies. *Journal of Public Administration Research and Theory*, 9(2), 193-223. <https://doi.org/10.1093/oxfordjournals.jpart.a024408>
- Williams, L. (2008). The mission statement: A corporate tool with a past, present, and future. *Journal of Business Communication*, 45(2), 94-119. <https://doi.org/10.1177/0021943607313989>
- Wuchty, S., Jones, B., & Uzzi, B. (2007). The increasing dominance of teams in productivity of knowledge. *Science*, 319(5827), 1036-1039. <https://doi.org/10.1126/science.1136099>
- Yozgat, U., & Karatas, N. (2011). Going green of mission and vision statements: Ethical, social, and environmental concerns across organizations. *Procedia Social and Behavioral Sciences*, 24, 1359-1366. <https://doi.org/10.1016/j.sbspro.2011.09.110>

Appendix

1. QS Classifications

All of the information presented in this appendix was obtained from the QS Intelligence Unit (2016).

- Size: Based on the (full-time equivalent) size of the degree-seeking student body. Where an FTE number is not provided or available, one will be estimated based on the common characteristics of other organizations in the country or region under study.

	Size	Student
XL	Extra Large	>30,000
L	Large	>=12,000
M	Medium	>=5,000
S	Small	<5,000

- Subject range: Four categories were based on the organization's provision of programs in the five broad faculty areas used in the university rankings. An additional category was added based on whether the subject organization has a medical school because of the radically different publication habits and patterns in the field of medicine.

	Focus	Faculty area
FC	Full comprehensive	All 5 faculty areas + medical school
CO	Comprehensive	All 5 faculty areas + medical school
FO	Focused	More 2 faculty areas
SP	Specialist	2 or 1 faculty areas

- Age: Since 2011, five age bands based on the supplied year of the foundation of the organization.

	Focus	Faculty area
5	Historic	More than 100 years old
4	Mature	50-100 years old
3	Established	25-50 years old
2	Young	10-25 years old
1	New	Less than 10 years

- Research intensity: Our level of research activity was evaluated based on the number of documents retrievable from Scopus in the five-year period preceding the application of the classification. The thresholds required to reach different levels differ depending on the pre-classification of organizations in their first and second aspects.

	Research intensity
VH	Very high
HI	High
MD	Medium
LO	Low

Since their introduction in the 2009 table, the QS classifications have been met with mixed feedback. Positive feedback was received for the concept and supporting research, but less-positive feedback was received for our notation. In the 2010 table, we implemented a more dramatically simple and transparent notation that introduced three columns, one for each of the above metrics.

Our intention is not to infer a hierarchy because the QS rankings are available for that purpose, i.e., XL is not a fundamentally more-preferable classification to S nor is it more intrinsically preferable to FC, but we intend to qualify the subject organization into broad types to make the ranking results more contextually relevant to an increasingly broad audience. For clarity, the Research Intensity factor described above was simplified, i.e., smaller organizations should clearly produce less research than a larger organization.

Research	Focus	XL	L	M	S
VH	FC	13000	10000	5000	2500
HI	FC	4000	3000	1500	750
MD	FC	750	500	250	100
LO	FC	0	0	0	0
VH	CO	7000	5000	2500	1250
HI	CO	2000	1500	750	400
MD	CO	400	250	100	50
LO	CO	0	0	0	0
VH	FO	3500	2500	1250	650
HI	FO	1000	750	400	200
MD	FO	150	100	50	50
LO	FO	0	0	0	0
VH	SP	2 x mean for specialist areas	2 x mean for specialist areas	2 x mean for specialist areas	2 x mean for specialist areas
HI	SP	1 x mean for specialist areas	1 x mean for specialist areas	1 x mean for specialist areas	1 x mean for specialist areas
MD	SP	0.5 x mean for specialist areas	0.5 x mean for specialist areas	0.5 x mean for specialist areas	0.5 x mean for specialist areas
LO	SP	0	0	0	0

2. Number of universities by continent and number of MS by country

Key	Continent	# Us	Key	Country	# MS
EU	Europe	94 (38%)	UK	United Kingdom	32
			DE	Germany	14
			NL	Netherlands	8
			FI	Finland	7
			CH	Switzerland	5
			BE	Belgium	5
			IE	Ireland	4
			DK	Denmark	3
			ES	Spain	3
			PT	Portugal	3
			FR	France	2
			NO	Norway	2
			SE	Sweden	1
			IT	Italia	1
			AT	Austria	1
			EE	Estonia	1
PL	Poland	1			
GR	Greece	1			
NA	North America	79 (31%)	US	United States	69
			CA	Canada	10
AS	Asia	48 (19%)	JP	Japan	11
			CN	China	6
			HK	Hong Kong	5
			IN	India	5
			KR	Korea	5
			MY	Malaysia	5
			TW	Taiwan	3
			SA	Saudi Arabia	2
			SG	Singapore	2
			TH	Thailand	1
			ID	Indonesia	1
			KZ	Kazakhstan	1
			LB	Lebanon	1
			OC	Oceania	18 (7%)
NZ	New Zealand	5			
LA	Latin America	5 (2%)	CO	Colombia	2
			BR	Brazil	1
			CL	Chile	1
			AR	Argentina	1
AF	Africa	4 (1%)	ZA	South Africa	3
			EG	Egypt	1
			Total # MS/VS		248

Intangible Capital, 2018 (www.intangiblecapital.org)

Article's contents are provided on an Attribution-Non Commercial 4.0 Creative commons International License. Readers are allowed to copy, distribute and communicate article's contents, provided the author's and Intangible Capital's names are included. It must not be used for commercial purposes. To see the complete license contents, please visit <https://creativecommons.org/licenses/by-nc/4.0/>.