MANAGEMENT EDUCATION BY THE FRENCH GRANDES ECOLES DE COMMERCE – PAST, PRESENT AND AN UNCERTAIN FUTURE

Abstract

This essay presents a comprehensive briefing on the past and present of a business educational culture that is significantly different in ethos and structure to the widely known systems in the US and UK. That is the history and culture of the French Grandes Ecoles de Commerce. A brief reminder of extant literature on the utility of business education and its seeming misalignment with the competencies and skills as specified by practitioners is then given. Key pressures and trends on and within this system – such as internationalisation, accreditation and a greater emphasis on publications are identified and discussed. These threads are then combined in a partial replication of the work of Dierdorff and Rubin (2006; 2009). Specifically, collated information on 1582 classes from 542 programmes at the top Grandes Ecoles de Commerce is presented alongside further secondary data and then analysed in respect of alignment with Rubin and Dierdorff's identified behavioural competencies.

We argue that the outcome of these pressures may well be that inherent and historical strengths of great value are being discarded, and that the degree of irrelevance and misalignment between educational provision and required managerial competence will stay the same or even get worse.

Keywords – France, business schools, pedagogy, practice, accreditation, Grandes Ecoles, behavioural competencies

Introduction

The French Higher Education system has a history, structure, and culture that differs substantially from that of the Anglophone world. This is especially true for professional and technical subjects such as engineering, hard sciences, and of course business. Over many years, a dual system of education has arisen with the academically orientated national universities and the more applied and highly prestigious Grandes Ecoles. However, recent pressures have seen an evolution in terms of the role and form of the Grandes Ecoles to the point at which their uniqueness in the world is being threatened as they are compelled to conform to the structures and practices of the dominant Anglophone sphere.

This essay has four main components. After briefly reviewing the literature concerned with the overall relevancy of Business School education, we provide an overview of the history and structure of the French Grandes Ecoles system. We then discuss the recent trends and emerging pressures facing this system using both primary and secondary evidence.

In order to examine the implications and consequences of these pressures, we then provide an extensive review of current programmes offered by the Grandes Ecoles and assess their alignment with desired managerial competencies. The essay concludes with reflections on the near and medium term prospects for this unique education system.

What is Management Education For?

The dozen most cited papers in AMLE have a strong theme of expressed concern about relevancy and validity in business education. Ghoshal (2005) notes that academic research may well be doing more harm than good. Navarro (2008) and Pfeffer and Fong (2002) are concerned about the efficacy, style and substance of flagship MBA programmes, whereas Adler and Harzing (2009) join Gioia and Corley (2002) in noting that the focus on rankings is quite likely to have been detrimental overall.

Recent publications in this journal and its peers have examined the connection [or lack of] between education and practice in general management education (Burke & Rau, 2010; Kayes, 2002; Grey, 2004; Aram & Salipante, 2003), and specific disciplines, such as entrepreneurship (e.g. Edelman, Manolova & Brush, 2008; Miller, Wesley & Williams, 2012), international business (Das, 2003; Mintzberg & Gosling, 2002), and marketing (Brennan, 2004; Tregear et al, 2010). In short, across the most common Business School disciplines there is serious concern about provision being reasonable, relevant or even rational. For example, Küster & Vila (2006) have highlighted that teaching and learning methods in commercial and organisational training bears little to no resemblance to business school pedagogy. This is echoed by Dierdorff and Rubin (2006), who examined the transfer of managerial competencies via well-known US MBA programmes and found a mismatch between objective, method, and outcomes when education and vocation were compared. Indeed, Rubin & Dierdorff (2009) found empirical support for the often voiced criticism that the curricula offered by Business Schools are misaligned with the relevant managerial competencies. In addition to these Business School trends, scholars have argued that it is important to examine such phenomena in educational systems outside the US and UK context (Mustar, 2009; Nyland, Forbes-Mewett & Härtel, 2013; Özkazanç-Pan, 2008). Thus, in the present

essay, we focus our examination on the Grandes Ecoles as a way of examining the impact of educational trends within a non-US or UK based context.

The Past and Present of Business Education within France

While in many European countries universities enjoy a higher status and a more prestigious reputation than non-university institutions, such as Polytechniques and Fachhochschulen (e.g. in the UK, Germany and Netherlands), the picture is slightly more complicated in France (Kaiser, 2007; Witte, van de Wende & Huisman, 2008). France has essentially a dual Higher Education system for business education: with large, low-fee, state funded universities and an alternative of smaller, more prestigious, high fee-paying Business Schools (the Grandes Ecoles de Commerce). In fact, the Grandes Ecoles, which are traditionally more practice oriented, are often referred to as elite institutions (Bourdieu, 1989). It is these latter that are our focus.

Some of the first universities in Europe were developed in France in the sixteenth century. However, in the course of time they lost aspects of their autonomy due to political and religious interference. As a consequence, alternative models of Higher Education evolved, including the Grandes Ecoles. The first of these institutions emerged in the eighteenth century and resulted in professional engineering schools, such as the Ecole Polytechnique. Soon, further institutions developed and diversified into different areas of study, such as business and administrative sciences (Godelier, 2005). Historically, many of these were founded or supported by the local and highly influential Chambers of

Commerce. This has had profound effects on the linkages between local businesses and the Grandes Ecoles in each region, with collaboration at many levels.

In respect of business education, France has some of the oldest Business Schools in the world, with a serious claim on having the second ever established – perhaps even the first – the *Ecole Supérieure de Commerce de Paris*, founded in 1819. French Business Schools have performed well in recent lists of rankings for executive and postgraduate education; part of the rebalancing away from US dominance outlined by Collet & Vives (2012). International comparisons are somewhat opaque given the essential differences between the programmes offered by Grandes Ecoles and other countries. However, if the pan-European rankings from the Financial Times are used as an example, then France has just one fewer Business School than the UK in the top 100 overall and as many in the top ten. Presence in the global rankings compares favourably to the UK. For a substantial overview of the history and development of the Grandes Ecoles de Commerce, please see Blanchard (2009).

The Programme Grande Ecole (PGE)

In most Anglophone countries the distinction between undergraduate and postgraduate programmes is clear (but not rigid). However, the Grandes Ecoles have traditionally only offered a three to five year *Programme Grande Ecole* (PGE). Recently, an increasing number of Grandes Ecoles have created a more flexible system following the more familiar US type Masters programmes such as MBAs and one year Masters

courses. In addition, growing pressures for international exchanges and the hosting of reciprocal students in France has resulted in a large number of one year Masters degrees taken as a "sandwich degree" within the PGE (known as *Double Diplôme or Masters specialisés*).

As in most countries, public universities admit students after they leave secondary school and in France, they are obliged to do so if a pupil passes the *Baccalauréat* and lives in the region. This has led to increasingly high numbers of students and a drop-out rate of over 40% (Harding, 2003; Ministère de l'Education Nationale, 2015). In contrast, the Grandes Ecoles can select students individually and also set intake numbers. Entry to a Grande Ecole is by means of the *concours*, where applicants are ranked according to their performance in an examination and interview. A Grande Ecole may administer their own *concours* but more likely will be part of a network such as Concours BCE (www.concours-bce.com) which provides a single entry point for an applicant to apply to up to 26 schools. Depending on the Grande Ecole, admission is typically directly into Year 3 of the PGE following a preparation course: either, the more prestigious and preferred *classe préparatoire* (2 year) or a *Bachelor* (3 year) award. The *classe préparatoire* requires long hours of classroom contact, contains little, or commonly no, business content and instead focuses on subjects such as philosophy or literature.

After entering the Grande Ecole, the student might then study a further two or three years, graduating with a PGE and perhaps additionally a Masters degree of some sort. There are also some Grandes Ecoles that select their students directly after secondary school (*Baccalauréat*) and offer a Bachelor degree in Business. In this case, the student would likely study five or six years at the Grande Ecole. In contrast to a traditional University system where a student can exit with a Bachelor (*licence*) after three years and a Masters degree after five years, Grande Ecole students will, in general, only be eligible to graduate with a PGE (sometimes called Master of Management), three to five

years after entry. In addition, and emphasising the more practical side of the Grande Ecole, a student entering in Year 3 could spend as much as 24 months in placements or exchange programmes out of the 36 months prior to graduation. Table 1 provides three examples of business programmes offered by 1) a Grande Ecole after high school (*Baccalauréat*) (five year programme), 2) a Grande Ecole after *classe préparatoire* (three year programme), and 3) a public university (five year programme).

Insert Table 1 about here

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There is also a large divide in tuition fees, as public universities charge between 150 and 700 Euros per year, whereas Grandes Ecoles in the Top 30 ranking charge between 7,000 and 13,000 Euros per year (L'Etudiant, 2014) in return for smaller class sizes and more contact hours (Paul, 2007), allowing small group exercises, presentations and in-class discussions.

Prestige is assured by the relatively small number of Grandes Ecoles graduates: less than 1% of all French students are at Grandes Ecoles (Mustar, 2009). During their studies, students enter a network of existing students as well as alumni of whom the majority are in very high, if not leading, positions in their field of work. Their personal networks are further developed through the various placements they have to serve during their studies. Similarly, career entry salaries and subsequent salary progression are relatively high for Grandes Ecoles alumni (Calmand et al., 2009). The reputation and the ranking of the Grandes Ecoles are key criteria in students applying to and selecting an institution. For a summary of key information refer to Table 2.

Insert Table 2 about here

Recent and Ongoing Trends in the Grandes Ecoles de Commerce sector

The eco-system that has developed successfully over the last three centuries is currently facing pressures due to social, political and economic changes imposed by globalised educational markets (Bennett & Kottasz, 2011). There are both domestic and international pressures forcing the "marketization" of these institutions (Lowrie & Hemsley-Brown, 2011).

In order to better understand the pressures on this unique system of education, we conducted a review of the academic literature, national and international press as well as holding discussions with eleven key representatives of the Top 30 Grandes Ecoles de Commerce. These included Professors, Programme Directors, International Relations Officers, Accreditation Managers and Industry Relations Managers chosen from a sample of people in these roles that had extensive international as well as French experience. The interview process was stopped at the point of theoretical saturation, as responses started to repeat and strong agreement of key pressures emerged. A thematic analysis (Baden, 2014) of all material was conducted by two researchers. First, the interview responses were coded into themes independently. As a second step both researchers compared their findings with each other. The procedure resulted in strong inter-rater agreement on five main pressures mentioned by respondents. The responses were further interpreted by drawing on the findings of the documentary and literature review. Through this reiterative process six key pressures (from internal and external/international sources) and their consequences were identified. At a national level pressures were labelled as "rising criticism of little social integration", "more transparency/public knowledge through rankings". The main pressures at an international level were identified as being "streamlining programmes and degrees", "competition for international students and

programme delivery", and "accreditation". The impact of both international and national pressures resulted in the sixth issue "Resources": both at a staffing level but also the balance between teaching and research. (see Table 3 for an overview)

Insert Table 3 here

These inseparable and inter-related pressures combine together to create a unique climate for the Grandes Ecoles and we now discuss how their unique, vocationally oriented, practitioner led programmes are changing as a result.

First, there is rising domestic criticism that the system reinforces social inequalities by reproducing the French elite. Studies have shown that pupils from lower social classes have little to no opportunity to enter a Grande Ecole (Attali & Brandys, 1998). In particular the high tuition fees and parental knowledge of Higher Education options are held responsible for this fact. As a reaction to this rising criticism a number of institutions have initiated a series of measures, such as the creation of some student funds, in order to enhance social integration at the schools. However, these initiatives are rather minimal and limited and they are likely to remain so.

Second, due to rising tuition fees and a strong media focus on publically available evaluations of the Grandes Ecoles (*classesments* published annually by outlets such as L'Etudiant), society has become more critical and the snob-value more transparent. Potential students and their parents now place a heavy emphasis on these rankings (Table 2). However rankings are inextricably linked to accreditation as well as international relations. The small to medium sized Grandes Ecoles have responded to this increasing pressure by an extensive series of mergers –

as being larger often means a higher place in the critical annual rankings: something which drives students to apply, and could signal the death of the small Grandes Ecoles (Science Guide, 2012).

Third, although the strong vocational emphasis on education has built reputations at a domestic level, the Grandes Ecoles have struggled with international recognition of their degrees. This manifests itself in several ways: the first being the lack of direct equivalent for a Programme Grande Ecole, which does not align well with the more traditional system of Bachelors and Masters degrees. From a European and US integration perspective the system also creates problems, as it is unclear how to classify the status of a student after a two-year Classe Préparatoire. Indeed, the traditional PGE system resulted in the student having no exit point until the final year of a Programme Grande Ecole (Sonntag, 2006). However, the Bologna Process - which seeks to harmonise EU wide Higher Education policies and programmes - suggests that students should have a qualification equivalent to a BA degree after three years of study in order to increase transparency across EU-member states as well as enhance student mobility (either for work or study purposes). In order for their degrees to be internationally recognised, and to attract foreign students, it is thus inevitable that the structure of the Grandes Ecoles becomes more streamlined.

This is confounded by the fact that a period of study abroad and/or serving international internships is now usually an important part of each student's curriculum (Abdessemed, 2007), as shown in Tables 1 and 2. To be able to deliver the study abroad options to all students entering a Grande Ecole, the schools have had to create multiple strong exchange programmes: some based on the European Erasmus programme system and others based on contacts between institutions directly. As a result of this, most Grandes Ecoles must reciprocate by hosting relatively large numbers of foreign students. The presence of international students also reinforces the need for English language

programmes and the need for a one-year degree option for visiting students. On the flip side, students often rank and choose their Grande Ecole based on the choice and extent of international partnerships, furthering the pressure on each school to form "good" partnerships.

The Grandes Ecoles in the Top 30 ranking have developed extensive international networks with many institutions of which the most sought after hold AACSB and/or EQUIS accreditation (L'Etudiant, 2014). Language is a further pressure point in the system: both the need to deliver in English for visiting students, and to compete for French students, but also because Business Schools have been aggressively developing their markets in foreign countries, either recruiting foreign students to their institutions at home, or through satellite campuses abroad, or through entire programmes delivered online. In order to be able to take part in this business, the Grandes Ecoles have made strides in adapting portions of their programme delivery into English language sessions.

Further, global pressure has been arising in the form of accreditation labels: The developing value of accreditation by authorities such as AACSB has resulted in changes to the way Business Schools are ranked and therefore perceived and evaluated by students (Scherer *et al.*, 2005). Accreditation pressures (Julian & Ofori-Dankwa, 2006) to improve the qualification standards of teaching staff have risen, as have the expectations that a certain number of classes must be taught in English. Accreditation is also seen as an essential strategy for several reasons: it can be regarded as helpful in forming alliances with overseas institutions and is also seen as a way of rising up the *classements*. For example, La Rochelle Business School was included in the FT rankings for the first time in 2014 due to its recent AACSB accreditation (Husson, 2014). Indeed, France leads the way in Europe for triple accredited institutions with 12 holding the "triple crown" of AMBA, EQUIS and AACSB.

Most typical accreditation processes require faculty to be research active and this often leads to pressure on faculty to gain PhDs and maintain a publishing stream. For example, the AACSB has a requirement for more than 50% of staff on an Undergraduate Programme to be academically qualified (AQ), requiring both a PhD and an active research profile, and this percentage climbs for higher degree levels thus impacting the Grandes Ecoles disproportionately. Until the fairly recent past, only a limited proportion of faculty at the Grandes Ecoles held a doctorate degree. Emphasis was mainly placed on practice-oriented teaching with little involvement in academic research and much of the teaching within the Grandes Ecoles was delivered through the use of external *intervenants* (adjunct staff) who were often practitioners and were unlikely to hold a PhD. The increasing requirements via accreditation processes for a higher percentage of research active staff is at significant odds from the historically practically oriented and industry linked Grandes Ecoles (Scherer *et al.*, 2005). Consequently, a higher proportion of academic staff are now required to hold PhDs and demonstrate research activity. Therefore, the hiring of appropriate external *intervenants* has become increasingly problematic, placing the current system into a state of flux.

The role of the *intervenants* has historically fulfilled two criteria: in most Grandes Ecoles usual class sizes are around 30 (occasionally rising to 50) students which means the same class is delivered multiple times per week. The faculty requirements are therefore far higher than the number of staff required in the traditional Anglophone model of lectures and tutorials. *Intervenants* were often used to cover this gap. In addition, *intervenants* tend to be experts in their field and are seen as the most appropriate people to be teaching the more applied or vocational subjects. This is an interesting development towards the given context of an elitist French educational culture which considers PhDs to be separate from business skills, even to the extent that there is suspicion in French industry of PhDs (Kumar and Usunier, 2001).

Finally, the resourcing problems of being able to source sufficient staff at the appropriate level and with the appropriate language skills has led to rising competition between Grandes Ecoles in order to deliver the programmes as outlined in the syllabi. The schools place a lot of effort onto the development and maintenance of their networks with industry, in order to be able to assist students finding appropriate placements, as well as with accredited academic partner institutions, in order to guarantee academic excellence throughout the duration of the entire programme. Given that the Grandes Ecoles have developed from a practical background with strong ties to the Chambers of Commerce and extensive networks with industry (schools in the Top 30 ranking receive annually up to 13,000,000 Euros contribution from industry) it is not surprising that teaching is organised in a different manner. Until recently, permanent professors have been selected on the basis of their teaching capabilities as well as practical experience. Moreover, the strong links between local industries and the Grandes Ecoles as well as multiple repetitions of classes during the week had led to extensive use of *intervenants*. Indeed, the role of industry is strong with the *concours* interviews usually involving one faculty member and one practitioner from a local business.

In order to examine the effect of these pressures on Grandes Ecoles, we now present and analyse a substantial body of facts and figures about business education at the Grandes Ecoles as a partial replication and extension of the business-curricula alignment work of Rubin and Dierdorff (2009).

Overview and Evaluation of Programme and Course Provision

To make our partial replication of the alignment work of Rubin and Dierdorff two raters obtained data independently from the websites and course outlines of the Top 30 Grandes Ecoles (L'Etudiant Ranking, 2014). The Top 30 Grandes Ecoles were chosen as these are the most highly sought after schools and many have AACSB accreditation, whereas hardly any of the lower ranked schools are accredited. Although INSEAD ranks prominently in the FT and other international rankings it is not a Grande Ecole and cannot offer the Programme Grande Ecole. Since its inception in the 1950s, the school was modelled on the US Postgraduate College system, with a flagship MBA programme. Despite its current success in global rankings (one of two French schools to currently compete head on for the top places with the US schools), it is an outlier in the French sector.

In total, 542 programmes offering 1582 courses across BA, PGE, MSc and MBA level were counted and included in our analysis. The programmes and courses were counted and classified according to managerial discipline, specific subject area, as well as the managerial behavioural competences conveyed by these courses (Rubin & Dierdorff, 2009) (see Table 4 for an overview of programmes by degree level).

Insert Table 4 about here

Programme Offerings

As a first step, we classified all programmes and courses into the main managerial disciplines (Management, Marketing, Economics, Finance, Law and Business) together with an emergent classification for Ethics and Corporate Social Responsibility. Additionally, we created

two categories for transversal disciplines, namely Statistics/Quantitative methods and IT/Software Applications. Finally, we developed an "other" category for all courses that were outwith the traditional managerial disciplines in order to enhance the general knowledge of students. This procedure resulted in a total of 45 subjects (9 for Management, 9 for Marketing, 9 for Finance, 5 for Economics, 4 for Business, 3 for Law, and 5 in total for Specialised Sector, Ethics, CSR, Statistics, Quantitative Methods, Professional/Personal Development and Other). Table 5 gives examples of the classification procedure. The rater agreement in this part of the classification was at 94%. The remainder was resolved through discussion.

Insert Table 5 about here

The discipline in which most programmes are offered across programme level is Management (n=139), followed by Marketing (n=133), Finance (n=86) and Business (n=66) (Table 4). Only a very few programmes are taught in Law, Economics, or CSR. Of particular interest is that a) there is a large number of programmes that focus on a specific sector (n=107), and b) the majority of programmes are offered at the MSc level. The reasons are rooted in the Grandes Ecoles system itself, as historically the schools only offered the Programme Grande Ecole leading to an MSc (see Table 1). However, due to changes in the national and international higher education environment the schools have increasingly come under pressure to offer a wider range of programmes in order to differentiate themselves competitively.

There have been several different strategies used by the Grandes Ecoles who are competing both for exchange students and for home students. One strategy is to offer a broad programme of English language classes mirroring their French offerings. The second strategy is to try

to specialise in either subject matter (e.g. accounting) by offering integrated degree programmes with professional qualifications, or by offering industry focused (e.g. Biotechnology / Food or Wine) specialist programmes (e.g. Dijon and Bordeaux both offer Master Programmes in Wine Business taught by a high proportion of practitioners). In the main, a lot of programmes have evolved organically over time on the basis of the industry experience of the permanent and contracted teaching staff, as well as involvement from local industry. More recently, the move to accreditation and the use of more academic rather than practitioner staff has led to a change in focus in courses offered: those with an academic focus replacing those with a stronger practitioner focus, sales and negotiation courses being replaced with textbook supported theoretical courses. Finally, for smaller schools unable to provide this range of courses, the strategy appears to rely on extensive alliances with overseas providers to offer the variety and English language courses required (Table 6 provides an overview of the range of Masters programmes offered).

Insert Table 6 about here

A proliferation of Master Programmes, or "double diplomes" are now being offered in most schools and inserted into the PGE programmes either in France or with partner Institutions.

French Grandes Ecoles also make a distinction between a 'specialised masters" and an MSc, with only the latter degree being regulated by the Conference des Grande Ecoles, and requiring 450 contact hours compared to 350 contact hours for the "specialised masters". These programmes are specifically designed to cope with exchange students and some are even offered solely off shore in China and Africa. The President of the Conference Grandes Ecoles predicts that the number of MSc courses offered will further increase in coming years (Meillerie, 2013). Moreover,

the Grandes Ecoles have increasingly started to add other degrees to their portfolio. As can be seen in Tables 4 and 7, the number of programmes at the MBA and BA level is still relatively small, but is expanding rapidly.

Insert Table 7 about here

France has three of the world's top 100 MBA programmes at INSEAD, HEC and EM Lyon. However, MBAs were traditionally not taught by the Grandes Ecoles, who always offered the Programme Grande Ecole. Pressure to compete for students has resulted in more and more Grandes Ecoles offering an MBA option and competing against world class institutions such as INSEAD (which is not a Grande Ecole). Traditionally a Programme Grande Ecole and a good network of contacts had more utility in France than an MBA but recently, in some schools, MBAs have been added in order to generate more revenue, establish better links to international professional bodies and industry, as well as for reasons of international reputation and accreditation. In order to do this, 68% of MBAs carry specialisations, 56% are part time and 58% are offered as part of an Initial degree offering (Renou, 2014). Indeed, in 2008 there were a total of 194 MBA programmes offered in France but by 2014, there were 277 (Renou, 2014). This is partially because an MBA is a degree-title which can be loosely applied, whereas the Programme Grande Ecole is a defined and highly regulated degree, overseen by the Conference Grandes Ecoles which was first established in 1973 (http://www.cge.asso.fr).

The BA degree is also a growing requirement due to European integration processes such as the Bologna agreement, which foresees that students should be able to obtain their first degree after three years of study, and their second degree after five years. Higher education

institutions that take place in international exchange programmes need to respect these guidelines in order to ensure student mobility between member states. All these factors reinforce the need to offer a *Double Diplome* option to French students which also allows a degree award to exchange students. The bulk of these specialised programmes focus on such themes/sectors as tourism and hospitality, luxury products, sports, and arts/culture.

Course offerings

As outlined above, in order to get a better insight into the content of all programmes offered by the Grandes Ecoles, we assessed the syllabi and counted the courses taught on the programmes. Table 8 provides an overview of the spread of subjects by disciplines across degree levels. In the interest of space, subjects that occurred less than 15 times across degree levels were grouped into "other".

Insert Table 8 about here

As can be seen, there is a wide spread and depth of courses offered in Management, Marketing and Finance, whereas only few courses are offered in Business, Law and Economics. There is a moderate offer of CSR and IT/Software application courses in the curricula. On the other hand, there is a large range of courses in Statistics and Quantitative Research Methods, as well as courses and seminars on Professional and Personal Development. The offer of courses in other disciplines in addition to the core programme, such as art, history and philosophy, is also relatively large.

Aligning course and Programme offerings to Managerial competencies

To evaluate whether USA MBA programmes offered by AACSB accredited schools were teaching students relevant skills, Rubin and Dierdorff (2009) examined the course content of 373 schools against six behavioural competencies (Managing Decision-Making Process, Human Capital, Strategy and Innovation, Task Environment, Administration and Control, Logistics and Technology) that were deemed necessary for successful managerial work. Two raters assessed the data and matched the courses to the most relevant managerial competency, leading to a classification of 3,594 courses with 92% absolute agreement. We decided to use the work of Rubin and Dierdorff as a basis for our study, not to draw a full and direct comparison with their results, but because it provides an extremely useful yardstick for our analysis as to the relevance of teaching practices – in assessing whether managerial competencies required by future employers are well integrated into the course structure of business school curricula within the Grande Ecole system.

We did not conduct a full replication of this previous work, but undertook a partial replication (meaning that we only take the managerial competencies used by Rubin and Dierdorff to structure our findings) and extension (as we do not only include MBA programmes, but also the *Programme Grande Ecole*). We do this for the following two reasons: First, the managerial competencies identified by Rubin and Dierdorff are also relevant outside the American context. One expression of this is the fact that INSEAD echoes these competencies in the programme content section of their brochure for General Management Programmes (2014-15, pp. 3-4) (Table 9).

Insert Table 9 about here

Second, the extension of this research to Rubin and Dierdorff's (2009) study is the application of the framework to a different, but essentially equivalent system of education. Although there are differences between the US MBA based education system and that of France, there is also value in using a comparative benchmarking system not only because many Grandes Ecoles now offer an MBA as part of the Programme Grande Ecole, but also because the end result of each system is to prepare competent and well trained managers. The Grandes Ecoles de Commerce give a promise to all stakeholders (including future employers, industrial partners, organisational bodies, parents and students) to prepare students for the labour market in order to guarantee a direct entry into a good job: therefore a different but comparable objective to the MBA degree. This necessity can be partially explained by structural differences in the US/UK labour market where trainee programmes are common after graduation from a university. Generally, in France such programmes are not particularly common, which means that the responsibility for preparing students for the labour market lies, in the main, with the higher education institution.

Effectiveness of Education by the Grandes Ecoles de Commerce – Building Managerial Behavioural Competencies

In order to assess the relevance of teaching for practice and thus the effectiveness of education offered by the modernized Grandes Ecoles de Commerce programmes we decided to assign the courses to important managerial behavioural consequences as identified in the literature (Dierdorff & Rubin, 2006; Rubin & Dierdorff, 2009). This procedure resulted in an inter-rater agreement of 91%. In case of disagreement, a

resolution was reached through discussion. If no consensus could be reached or neither of the raters could find a category for a given course, the course was coded as "other".

After having classified the 1582 courses into the six managerial competencies we calculated the spread in percentages of each competency for all 30 schools individually and then calculated the average across schools. Table 10 presents the results of this procedure.

Insert Table 10 about here

The data show that the managerial competence covered in the greatest number of courses is related to Task Environment, followed by Administration and Control and Human Capital. Less often covered are Strategy and Innovation, Logistics and Technology and Decision-Making. A follow-up analysis revealed that there is a significant difference between the average coverage of each managerial competence (p < .01). Overall, it can be concluded that the recent efforts taken by the Grandes Ecoles in order to meet national and international pressures do not lead to an extensive provision of courses that would teach any of the six managerial competencies that have been identified as essential by Dierdorff and Rubin (2006) (coverage ranges between 7.9% in Managerial Decision-Making and 30.2% in Task Environment). It can be further observed that the variance across schools is relatively low in four of the six managerial competences, suggesting that the educational offer is relatively homogenous in the sample schools. This is not surprising, given that we only included the Top 30 schools in this study that are in direct competition with each other. Despite the fact that they may specialise in sector or industry specific programmes there will still be isomorphic pressures that lead schools to prioritise basic underlying managerial competencies in a similar way.

The Future – Pressures Changing the French Grandes Ecoles

The complex and unique Grandes Ecoles system has developed over a long period of time in relative isolation from international influences. It has been a self-perpetuating yet successful system in the training of future business professionals with strong links between the Grandes Ecoles and Industry and local Chambers of Commerce, which have played an influential role in the selection of, education of, and industrial placement of students during the programme. Alumni often remain in the region and seek to remain associated with their Grande Ecole either through participating in the *concours* interviews, or by offering student placements, or by delivering guest lectures. There is much to admire – and learn from.

While the system has apparent strengths, it is increasingly under pressure to reform and reshape. The combination of domestic and international pressures on this unique system of education has led to a situation where the previously unique and vocationally oriented education offered by the Grandes Ecoles may potentially face the same dilemma as other institutions under the Anglophone (UK/ US dominant) model. The tensions between research and practice discussed in the academic literature appear to be acutely relevant to the current situation in France. An assimilation of French Higher Education institutions domestically as well as internationally may lead to a mediocre performance on all dimensions. The stated aim of accrediting bodies and international standards is to increase transparency and raise the quality of business education. Yet rising numbers of school accreditations may merely stand to create a second tier of mediocre Business School clones (Corcoran, 2011) that cannot pass beyond replicating the status quo. The uniqueness and richness of the Programme Grande Ecole system is slowly being

lost as the market imposes conformity to international norms. This is somewhat ironic given the need for accredited institutions to bring practice into the classroom through guest lectures and extensive use of case studies.

We are reminded of the seismic change in the UK just over 20 years ago, where the vocationally orientated Polytechnics threw away many similar strengths in order to replicate the more established and more prestigious universities. Now, in acts of terrible irony, those copied universities are desperately trying to build and recover many things that were thrown away by their social inferiors – practitioner relevance, connections with industry and vocational training, placements and professional experience. We believe it can now be said that even though accreditation may help with brand and reputation, there is increasing evidence from multiple countries – Australia, Greece, as well as the UK, US and now France - and multiple programme categories that some other important things are made worse (Fotopoulou, 2014; Hall et al, 2013; Jackson and Chapman, 2013). Worryingly, accreditation is too often seen as providing legitimacy benefits, rather than performance benefits (Devinney et al, 2008; Hodge, 2010) and we believe there are strong echoes in the pressures acting upon the Grandes Ecoles of the isomorphic tendencies of US and European business schools identified by Wedlin (2007) and Khurana (2010), the former of which notes the power of groupthink and the desire for senior school management to place their schools within certain peer groups and the latter of which has convincingly argued that such isomorphism is an outcome of the triumph of marketization over a more authentic 'professionalization project' As such, the debate about the relevance of management education and the teaching and practice divide may become an overarching global issue and we may soon look upon the MBA and accreditation more as symptoms than solutions.

Further, we believe we have strong evidence to show that misalignment is not only a problem for MBA programmes. These may be the most prestigious, but they only account for a small minority of Business School students. It is also an issue for undergraduate programmes, which contain the vast majority of the extremely large and growing numbers of young people studying business and management. Clearly, self-reflection and critical analysis is necessary for managers and staff of those programmes as well, not just the postgraduate, high-fee flagships (Rubin and Dierdorff, 2013).

It is certainly debatable whether these changes are positive. For instance, the widespread use of practitioners to teach within Business Schools may serve merely to replicate the status quo of business practice without introducing new theories and ideas. Kumar and Usunier (2001) argue that the dominance of US led practices of business education has increased the tendency for ethnocentric practices. This essay and reflection of a different education system may offer different insights to the more dominant Anglophone systems, and open the question further as to the role of accreditation and relevance.

References

- Abdessemed, T. 2007. Le modèle Grande Ecole dans la compétition mondiale. Révue Française de Gestion, 9(178-179): 157-172.
- Adler, N. J., & Harzing, A. W. 2009. When knowledge wins: Transcending the sense and nonsense of academic rankings. *Academy of Management Learning & Education*, 8(1): 72-95.
- Aram, J. D., & Salipante, P. F. 2003. Bridging scholarship in management: Epistemological reflections. *British Journal of Management*, 14(3): 189-205.
- Attali, J., & Brandys, P. 1998. Pour un modèle européen d'enseignement supérieur. Paris: Stock, p20.
- Baden, D. 2014. Look on the bright side: a comparison of positive and negative role models in business ethics education. *Academy of Management Learning & Education*, 13(2): 154-170.
- Bennett, R., & Kottasz, R. 2011. Strategic, competitive, and cooperative approaches to internationalisation in European business schools. *Journal of Marketing Management*, 27(11-12): 1087-1116.
- Blanchard, M. 2009. From 'Ecoles Supérieures de Commerce' to 'Management Schools': transformations and continuity in French business schools. European Journal of Education. Vol. 44, No. 4, 2009, Part II
- Bourdieu, P. 1989. La noblesse d'Etat. Grandes écoles et esprit de corps, Paris, Editions de Minuit.
- Brennan, R. 2004. Should we worry about an academic-practitioner divide in marketing?, *Marketing Intelligence & Planning*, 22(5): 492-500.
- Burke, L.A., & Rau, B. 2010. The research-teaching Gap in management. Academy of Management Learning & Education, 9(1): 132-143.
- Calmand, J., Giret, J.-F., Guégnar, C., & Paul, J-J. 2009. Why Grandes Ecoles are so valued?, 17th annual workshop of the European Research Network in Transitions in Youth IREDU, Dijon.
- Collet, F., & Vives, L. 2012. From pre-eminence to prominence: The fall of US business schools and the rise of european and asian business schools in the Financial Times Global MBA Rankings. *Academy of Management Learning & Education*, 12(4): 540-563.

- Corcoran, C. P. 2011. AACSB accredited business programs: Differences and similarities. *Journal of Business & Economics Research*, 4(8): 41-48.
- Das, T. K. 2003. Managerial perceptions and the essence of the managerial world: what is an interloper business executive to make of the academic-researcher perceptions of managers? *British Journal of Management*, 14(1): 23-32.
- Devinney, T., Dowling, G. R., & Perm- Ajchariyawong, N. 2008. The Financial Times business schools ranking: What quality is this signal of quality? *European Management Review*, 5(4), 195-208.
- Dierdorff, E. C., & Rubin, R. S. 2006. Toward a comprehensive empirical model of managerial competencies. Technical report presented to the MERInstitute of the Graduate Management Admission Council, McLean, VA.
- Edelman, L. F., Manolova, T. S., & Brush, C. G. 2008. Entrepreneurship education: Correspondence between practices of nascent entrepreneurs and textbook prescriptions for success. *Academy of Management Learning & Education*, 7(1): 56-70.
- Fotopoulou, D. 2014. *The Impact of Foreign Higher Education on Management Practices: The Case of MBAs in Greece* (Doctoral dissertation, University of Sheffield).
- Ghoshal, S. 2005. Bad management theories are destroying good management practices. *Academy of Management Learning & Education*, 4(1), 75-91.
- Gioia, D. A., & Corley, K. G. (2002). Being good versus looking good: Business school rankings and the Circean transformation from substance to image. *Academy of Management Learning & Education*, *1*(1): 107-120.
- Godelier, N. 2005. Les élites managériales entre logiques nationales endogènes et globalisation exogènes, *Entreprise et Histoire*, 41: 6-14.
- Grey, C. 2004. Reinventing business schools: The contribution of critical management Education, *Academy of Management Learning & Education*, 3(2): 178-186.

Hall, R., Agarwal, R., & Green, R. 2013. The future of management education in Australia: challenges and innovations. *Education+ Training*, 55(4/5), 348-369.

Harding, L. (2003), Tuition fees gain allure in cash-hit European campuses

The Guardian, Monday 13 October 2003 available online at:

http://www.theguardian.com/world/2003/oct/13/highereducation.tuitionfees

Hodge, T.A. 2010. Accreditation of Business Schools: An Explanatory Multiple-Case Study of their Motivations. *Master of Commerce in Management Thesis*, University of Canterbury, New Zealand

Husson, L-E. (2014). Ecoles de commerce: les 5 enseignements du palmares 2014 du Financial Times, 1/12/2014 available at:

http://www.challenges.fr/emploi/20141201.CHA0932/ecoles-de-commerce-les-5-lecons-du-classement-europeen-du-financial-times.html (accessed 29/1/2015).

INSEAD, 2014-15. General Management Programmes. Management Acceleration Programme Brochure, INSEAD, France.

Jackson, D., & Chapman, E. 2012. Empirically derived competency profiles for Australian business graduates and their implications for industry and business schools. *The International Journal of Management Education*, 10(2), 112-128.

- Julian, S. D., & Ofori-Dankwa, J. C. 2006. Is accreditation good for the strategic decision making of traditional business schools? *Academy of Management Learning & Education*, 5(2): 225-233.
- Kaiser, F. 2007. Higher Education in France Country Report, *International Higher Education Monitor*, **Center for Higher Education Policy Studies**, Enschede.
- Kayes, D. C. 2002. Experiential Learning and Its Critics: Preserving the Role of Experience in Management Learning and Education. *Academy of Management Learning & Education*, 1(2): 137-149.

- Khurana, R. 2010. From higher aims to hired hands: The social transformation of American business schools and the unfulfilled promise of management as a profession. *Princeton University Press*.
- Küster, I. & Vila, N. 2006. A comparison of teaching methods in North American and European universities. *Marketing Intelligence & Planning*, 24(3): 319-331.
- Kumar, R., & Usunier, J-C. 2001. Management education in a globalizing world, Lessons from French experience. *Management Learning*, 32(3): 363-391.
- L'Etudiant 2014, *Palmarès des Grandes Ecoles de Commerc 2014*, available at : http://www.letudiant.fr/palmares/palmares-des-grandes-ecoles-de-commerce/excellence-academique-1.html, last accessed : January 2014.
- Lowrie, A. & Hemsley-Brown, J. 2011. This thing called marketization. *Journal of Marketing Management*, 27(11-12): 1081-1086.
- Meillerie, M. 2013. MS et MSc, les mastères des grandes écoles Une valeur ajoutée encore brouillée par un manque de lisibilité, LeNouvelEconomiste.fr. 12 /12/ 2013. Accessible at: http://www.lenouveleconomiste.fr/lesdossiers/ms-et-msc-les-masteres-des-grandes-ecoles-20880/ (accessed 29/1/2015).
- Miller, T. L., Wesley, C. L., & Williams, D. E. 2012. Educating the minds of caring hearts: Comparing the views of practitioners and educators on the importance of social entrepreneurship competencies. *Academy of Management Learning & Education*, 11(3): 349-370.
- Ministere de l'Education Nationale de L'enseignment Superieur et de la Recherche, 2015, L'Enesignement Superior en Chiffres. Accessible at : http://www.enseignementsup-recherche.gouv.fr/cid78525/les-effectifs-universitaires-en-hausse-de-2-4-en-2013-2014.html (accessed 29.1.2015)
- Mintzberg, H. & Gosling, J. 2002. Educating managers beyond borders. Academy of Management Learning & Education, 1(1): 64-76.
- Mustar, P. 2009. Technology management education: Innovation and entrepreneurship at MINES ParisTech, a leading French engineering school. *Academy of Management Learning & Education*, 8(3): 418-425.

- Navarro, P. 2008. The MBA core curricula of top-ranked US business schools: a study in failure? **Academy of Management Learning & Education**, 7(1): 108-123.
- Nyland, C., Forbes-Mewett, H., & Härtel, C. E. 2013. Governing the International student experience: Lessons from the Australian international education model. *Academy of Management Learning & Education*, 12(4): 656-673.
- Özkazanç-Pan, B. 2008. International management research meets "The rest of the world". Academy of Management Review, 33(4): 964-974.
- Paul, J. 2007. Economie de l'Education, Armand Collins.
- Pfeffer, J., & Fong, C. T. 2002. The end of business schools? Less success than meets the eye. *Academy of Management Learning & Education*, *1*(1): 78-95.
- Renou, F. 2014. Le MBA: un diplôme prisé des recruteurs... et des écoles, 28/5/2014, Journal du Net. Available at : http://www.journaldunet.com/management/formation/mba-en-france-selon-xerfi.shtml
- Rubin, R.S. & Dierdorff, E.C. 2009. How relevant is the MBA? Assessing the alignment of required curricula and required managerial competencies. *Academy of Management Learning & Education*, 9(2): 208-224.
- Rubin, R., & Dierdorff, E. 2013. Building a Better MBA: From a Decade of Critique Toward a Decennium of Creation. *Academy of Management Learning & Education* 2(1) 125-141.
- Scherer, R. F., Javalgi, R. G., Bryant, M. & Tukel, O. 2005. Challenges of AACSB international accreditation for business schools in the United States and Europe, **Thunderbird International Business Review**, 47: 651–669.
- Science Guide. 2012, *Major Mergers in French Business Schools*, available at: http://www.scienceguide.nl/201201/major-mergers-in-french-business-school-sector.aspx, last accessed: January 2013
- Sonntag, A. 2006. Grandes écoles und classes prépa unter Globalisierungsdruck, *Frankreich-Jahrbuch 2005*, Wiesbaden, Verlag für Sozialwissenschaften, 121-138.

- Tregear, A., Dobson, S., Brennan, M., & Kuznesof, S. 2010. Critically divided?: How marketing educators perceive undergraduate programmes in the UK. *European Journal of Marketing*, 44(1/2): 66-86.
- Wedlin, L. 2007. The Role of Rankings in Codifying a Business School Template: Classifications, Diffusion and Mediated Isomorphism in Organizational Fields. **European Management Review**, Vol. 4, Issue 1, pp. 24-39
- Witte, J., van der Wende, M., & Huisman, J. 2008. Blurring boundaries: How the Bologna process changes the relationship between university and non-university higher education in Germany, the Netherlands and France. *Studies in Higher Education*, 33 (3): 217-231.

<u>Table 1. Example of Management Programme Structures – Grandes Ecoles and Public Universities</u>

Example 1: Programme Grande Ecole Management – intake straight after Baccaleauréat (5 year programme)

1st cycle (comparable to UG studies)

2nd cycle (comparable to PG studies)

Year 1	Year 2	Year 3	Year 4 (Master I)	Year 5 (Master II)
Semester 1	Semester 3	Semester 5	Semester 7	Semester 9
Introduction to Management, Mathematics for Management and Applied Office Automation, General Accounting 1, Economics, LV1 English, LV2 German or Spanish	Statistics and Information Systems, Economics, Introduction to Law and Obligations, Psychosociology of Organisations, Taxation, LV1 English, LV2 German or Spanish	International Trade & Export Project, Marketing Strategy, Human Resource Management/Law, Financial Markets, LV2 German or Spanish One elective: Advanced Business or European Integration LV3 Elective: Mandarin, Hungarian, Spanish, Italian, German, Russian, Arabic, Japanese	Expertise in Marketing, Leadership and Strategy One elective amongst: Customer Relationship Management, Negotiation, Country Risk Analysis	Choice of one specialisation amongst: Services Marketing and Revenue Management, Webmarketing, Organisational Communications, Automobile Network Management, Mass Marketing, Fashion Marketing, Supply Chain Management, International Business
Semester 2	Semester 4	Semester 6	Semester 8	Semester 10
Marketing, Globalisation Studies, General Accounting 2, Quantitative Methods and Information Technologies, LV1 English, LV2 German or Spanish	Project Management Tools, Commercial Law, Business Ethics and Corporate Responsibility, Advanced Marketing, Management Analysis and Control, LV1 English, LV2 German or Spanish	Academic exchange	Compulsory 4 months placement or Academic exchange	Compulsory 4 months placement Applied research dissertation
Compulsory 8 week placement	Compulsory 8 week placement in sales Market research project			
LV3 Elective: Mandarin, Hungarian, Spanish, Italian, German, Russian, Arabic, Japanese	LV3 Elective: Mandarin, Hungarian, Spanish, Italian, German, Russian, Arabic, Japanese			

Example 2: Grande Ecole – intake only after Baccaleauréat + Classe Préparatoire (2 years) or BA/Licence from public university (3 years)

Year 1 Year 2	Year 3	Year 4 (Master I)	Year 5 (Master II)
Classe préparatoire	Grande Ecole Foundation	Mandatory courses (in French or English):	Choice of one specialisation
	Year		amongst:
		Accounting, Behavioural Management, Company Law, Contract and Tort Law, Corporate Finance,	Entrepreneurship, International
		Corporate Tax Management, Financial Accounting, Financial Economics, Financial Markets,	Business, Managing New
		Management of information systems, Marketing, Methods of Cost Analysis, Performance	Technologies, Marketing, Media
		Measurement and Management, Statistics, Strategy, Supply Chain Management	Arts and Creation, Project
			Management, Strategic Management
		<u>Electives</u>	
			Optional certificate programmes:
		Economics, Entrepreneurship and Innovation, Finance, General Management, Human Resource	Digital Innovation for Business,
		Management, Industrial Business and Strategy, Law, Marketing, Society and Organisations	Innovation and Entrepreneurship,
			Luxury Strategies
BA/Licence from public univer	<u>rsity</u>	Between 4 th and 5 th year:	
•		Academic exchange year	
		Compulsory 30 weeks placement	Compulsory research paper

Example 3: Public University - intake straight after Baccaleauréat (5 year programme)

<u>Licence - Languages and International Business</u>			Master in International Marketing and
			Management (intake only after:
			<u>Licence LEA)</u>
<u>Year 1</u>	Year 2	Year 3	Year 4/Year 5
Semester 1	Semester 3	Semester 5	
			International Strategic and Operational
English	Applied Economics	International Commerce	Marketing
<u>Linguistic Competence</u>	Mediation, Communication (English and second	Communication in a Professional Context	Market Research
Communication Technique, Country Knowledge	<u>Language</u>)	Professional Language	<u>Communication</u>
Organisational Management	<u>Linguistic Competence</u>	<u>Law, IT</u>	International Management
Professional Project Development	Professional Language, IT		International Business and Sales
			Negotiation
Semester 2	Semester 4	Semester 6	Languages
Communication, second Language	Economics and Management	International Commerce	Compulsory: 4-6 months Placement
<u>Linguistic Competence</u>	Mediation, Communication (English and second	Communication in a Professional Context	
Communication Technique, Country Knowledge	<u>Language</u>)	Professional Language	
Economic Analysis	<u>Linguistic Competence</u>	European Harmonisation	
<u>IT</u>	Professional Language		
Electives (3rd Language, Language and Society)	Electives (third Language, Language and Society)	Electives (third Language, Language and	
		Society)	
		Optional: academic exchange semester/year	

<u>Table 2. Key Information – Top Grandes Ecoles de Commerce in 2013 to 2015</u>

Institution Name	2013 rank	2014 rank	2015 rank	Salary after graduation K (Euro)	Tuition fees 2013	Overseas period (min. months)	Industry period (min. months)
HEC	<u>1</u>	<u>1</u>	<u>1</u>	<u>40-47</u>	12,200	<u>4</u>	<u>12</u>
ESCP Europe	<u>2</u>	<u>4</u>	<u>3</u>	<u>40-47</u>	11,833	<u>3</u>	<u>9</u>
EM Lyon	<u>3</u>	<u>3</u>	<u>4</u>	<u>40-47</u>	<u>12,400</u>	<u>8</u>	<u>8</u>
ESSEC	<u>4</u>	<u>2</u>	<u>2</u>	<u>40-47</u>	<u>13,167</u>	<u>9</u>	<u>18</u>
EDHEC	<u>5</u>	<u>5</u>	<u>5</u>	<u>40-47</u>	12,500	<u>6</u>	<u>12</u>
Grenoble EM	<u>6</u>	<u>6</u>	<u>6</u>	<u>32-40</u>	11,044	<u>6</u>	<u>12</u>
Kedge (Euromed & Bordeaux)	<u>7</u>	<u>14</u>	<u>12</u>	<u>32-40</u>	<u>10,850</u>	<u>12</u>	<u>12</u>
Neoma (Rouen and Reims)	<u>8</u>	<u>13</u>	<u>14</u>	<u>32-40</u>	<u>10,200</u>	<u>6</u>	<u>11</u>
ESC Toulouse	<u>9</u>	<u>8</u>	<u>10</u>	<u>32-40</u>	<u>9,762</u>	<u>6</u>	<u>12</u>
<u>Audencia</u>	<u>10</u>	<u>9</u>	<u>7</u>	<u>32-40</u>	<u>9,933</u>	<u>6</u>	<u>14</u>
Skema (ESC Lille & CERAM)	<u>11</u>	<u>10</u>	<u>8</u>	<u>32-40</u>	10,413	<u>6</u>	<u>16</u>
<u>IESEG</u>	<u>12</u>	<u>7</u>	<u>9</u>	<u>32-40</u>	<u>8,783</u>	<u>8</u>	<u>16</u>
ESC Montpellier	<u>13</u>	<u>11</u>	<u>12</u>	<u>26-32</u>	13,327	<u>8</u>	<u>17</u>
Telecom EM	<u>14</u>	<u>12</u>	<u>15</u>	<u>32-40</u>	<u>5,650</u>	<u>6</u>	<u>9</u>
ESC Rennes	<u>15</u>	<u>15</u>	<u>10</u>	<u>32-40</u>	<u>8,500</u>	<u>6.5</u>	<u>9</u>
ESSCA	<u>16</u>	<u>26</u>	<u>16</u>	<u>32-40</u>	<u>9,100</u>	<u>6</u>	<u>16</u>
INSEEC	<u>17</u>	<u>32</u>	<u>25</u>	<u>26-32</u>	<u>10,163</u>	<u>9</u>	<u>16</u>
EM Strasbourg	<u>18</u>	<u>25</u>	<u>19</u>	<u>26-32</u>	<u>7,500</u>	<u>10</u>	<u>11</u>
<u>ICN</u>	<u>19</u>	<u>16</u>	<u>17</u>	<u>32-40</u>	<u>9,127</u>	<u>8</u>	<u>12</u>
ESCE	<u>20</u>	<u>33</u>	<u>30</u>	<u>32-40</u>	<u>9,751</u>	<u>10</u>	<u>14</u>
ESC Dijon	<u>21</u>	<u>18</u>	<u>18</u>	<u>26-32</u>	<u>8,500</u>	<u>6</u>	<u>13</u>
EM Normandie	<u>22</u>	<u>23</u>	<u>22</u>	<u>26-32</u>	<u>8,230</u>	<u>12</u>	<u>17</u>
EBS	23	35	32	<u>26-32</u>	<u>8,680</u>	<u>20</u>	<u>18</u>
ESG (now PBS)	<u>24</u>	<u>21</u>	<u>20</u>	<u>32-40</u>	<u>8,563</u>	<u>15</u>	<u>15</u>
ESC La Rochelle	<u>25</u>	<u>30</u>	<u>21</u>	<u>26-32</u>	<u>8,795</u>	<u>12</u>	<u>14</u>
ISC Paris	<u>26</u>	<u>24</u>	<u>24</u>	<u>26-32</u>	<u>9,830</u>	<u>10</u>	<u>14</u>
<u>Novancia</u>	<u>27</u>	<u>29</u>	<u>34</u>	32-40	<u>7,630</u>	6	<u>16.5</u>
ESC Troyes	<u>28</u>	<u>22</u>	<u>23</u>	<u>26-32</u>	<u>7,700</u>	<u>4</u>	<u>14</u>
<u>ISG</u>	<u>29</u>	<u>17</u>	<u>25</u>	<u>26-32</u>	<u>9,570</u>	<u>14</u>	<u>12</u>
<u>IPAG</u>	<u>30</u>	<u>20</u>	<u>27</u>	<u>26-32</u>	<u>7,800</u>	<u>10</u>	<u>12</u>
EDC Paris	<u>31</u>	<u>19</u>	<u>28</u>	<u>26-32</u>	8,300	12	<u>19</u>
ESC Pau	<u>32</u>	<u>28</u>	<u>31</u>	<u>26-32</u>	<u>8,800</u>	<u>6</u>	<u>13</u>
<u>ESDES</u>	<u>33</u>	<u>35</u>	<u>35</u>	<u>32-40</u>	<u>7,580</u>	9	<u>15</u>
<u>IDRAC</u>	-	<u>27</u>		<u>n.a.</u>	<u>7,940</u>	7	<u>18</u>
<u>ICD</u>	-	<u>31</u>	<u>28</u>	<u>26-32</u>	8,798	12	20
ISTEC	_	<u>33</u>	<u>33</u>	<u>26-32</u>	8,140	<u>12</u>	<u>15</u>

Note: the overseas period can include either study or industry placement overseas

Data was drawn from LeFigaro 2015 Palmares available at: http://www.letudiant.fr/palmares/palmares-des-grandes-ecoles-de-commerce/icd-paris.html

Table 3. Summary of Pressures Impacting the Grandes Ecoles System

Pressures	Quotes from Grandes Ecoles representatives
Rising criticism of little social integration	"They (Grandes Ecoles) are traditionally very elitist. Two things play a role: First, students need to have very good grades at school and need to perform well at the concours in order to get access to a Grande Ecole. But then, more importantly, parents need to be able to pay the high tuition fees (in comparison, public universities cost next to nothing). Therefore, in the main, access is determined by the financial means of the family – this makes Grandes Ecoles quite exclusive and the body of students homogenous. This is increasingly an issue, as a great part of the population is excluded." "Tuition fees (are a problem), because they bias in favour of the well-off. (There is a) lack in ethnic diversity. But it would benefit the students and the school to find a reflection of society in the school."
More transparency, public knowledge and rankings	"It's (accreditation) something schools must have now. It's key to the success and profile." "It's good because it forces institution to have objective and metrics. But it's also problematic, because of standardisation and loss of specific culture and competitive advantage (employability rate was the ultimate measure in the past and very good achievement of many French Business schools. Now it's all a set of measures to reach accreditation objectives in teaching and research without really strategically thinking of the consequences in a few years decline of employability rate?)"
International Streamlining programmes and degrees	"Programmes have to become more standardised across Grandes Ecoles and public universities – due to political and accreditation pressures. That means it will also be more comparable to other countries Grandes Ecoles may lose their unique status."
Competition for international students and programme delivery	"The internationalisation of Higher Education presents a real challenge. More and more Grandes Ecoles try to create and deliver internationally recognised degrees to attract foreign students. That's not easy – there have been scandals lately that schools called their programmes Masters degrees whereas they didn't have the official authorisation to do so." "At a national level there is an increased struggle to find permanent staff as well as intervenants to deliver courses in English."
Accreditation	"Since the fulfilment of accreditation criteria requires resources it becomes more and more difficult for individual schools to sustain. A lot of mergers are taking place, confusing parents, students, industry at an international level. All of this will have a big impact on the market and the reputation of the Grandes Ecoles."
Resource Issues Resources A: staff	"The Grandes Ecoles need to work on their international network with other academic institutions in order to guarantee exchange opportunities. They need to stay in close touch with industry to widen placement options for students. They need to hire more international staff to meet accreditation criteria – as well as work on the quality of teaching and research. All this with fewer resources due to more competition and cuttings of funding from industry bodies."
Resources B: teaching / research balance	"Due to the focus on accreditation (in particular AACSB), Grandes Ecoles may lose their focus on industry relations and become more internally focused when it comes to the identification of a research agenda – also a stronger focus on research may not help the teaching output." "More Grandes Ecoles put resources into increasing the number of academically qualified staff. With more emphasis on the achievement of PhDs and subsequent research output the question becomes how practical topics can be sufficiently taught in the long run if less professionally qualified teaching staff is hired."

Table 4. Overview of Programmes by Degree Level

-		Degree Level						
			<u>BA</u>	M	<u>ISc</u>	<u> </u>		
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
Academic Discipline	<u>Management</u>	<u>8</u>	<u>14.8%</u>	<u>107</u>	<u>26.0%</u>	<u>24</u>	31.2%	
	<u>Marketing</u>	<u>12</u>	<u>22.2%</u>	<u>111</u>	<u>27.0%</u>	<u>10</u>	<u>13.0%</u>	
	<u>Finance</u>	<u>7</u>	<u>13.0%</u>	<u>73</u>	<u>17.8%</u>	<u>6</u>	<u>7.8%</u>	
	<u>Business</u>	<u>16</u>	<u>29.6%</u>	<u>31</u>	<u>7.5%</u>	<u>19</u>	<u>24.7%</u>	
	<u>Law</u>	<u>0</u>	<u>.0%</u>	<u>6</u>	<u>1.5%</u>	<u>0</u>	<u>.0%</u>	
	<u>Economics</u>	<u>0</u>	<u>.0%</u>	<u>4</u>	<u>1.0%</u>	<u>0</u>	<u>.0%</u>	
	<u>CSR</u>	<u>0</u>	<u>.0%</u>	<u>1</u>	<u>.2%</u>	<u>0</u>	<u>.0%</u>	
	Specific Sector/Industry	<u>11</u>	<u>20.4%</u>	<u>78</u>	<u>19.0%</u>	<u>18</u>	23.4%	
Total		54	100.0%	411	100.0%	77	100.0%	

<u>Table 5. Examples of Course Classification by Discipline and Subject</u>

<u>Discipline</u>	Examples - Subject	Examples – Programme titles
Management	Strategy and Innovation	Innovation management, Organisational strategy,
		Strategic management, Strategy and decision-
		<u>making</u>
	Human Resource	People and Organisations, Personnel
	Management	Development, Remuneration, Managing Diversity
	Performance and Quality	Management of Production Systems, Yield
	Management	Management, Standards and Quality, Performance
		Measurement and Management
Marketing	<u>Marketing</u>	Advertising Agencies, Corporate
<u></u>	Communications	Communications, Public Relations, Brand
	<u></u>	Management
	Market Insight	Consumer Behaviour, Marketing Research,
	Warket Hisight	Market Intelligence, Market Analysis
	Relationship Marketing	Customer Experience Management, Customer
	Kelationship Warketing	Support, Customer Relations, Relationship
		Marketing
Economics	Economia Analysis	Econometrics, Economic Analysis
<u>Economics</u>	Economic Analysis	
	Applied Economics	Financial Economics, Geoeconomics, Internet
	C 15 :	<u>Economics</u>
	General Economics	Current Economic Issues, Economic Environment
		Political Economy
<u>Finance</u>	Financial Markets and	Bank Fund and International Markets, Capital
	<u>Institutions</u>	Markets, Tools for Financial Markets
	International Finance	Emerging Markets Finance, International
		<u>Taxation</u> , <u>Islamic Finance</u>
	Audit and Control	Cost Analysis, Budgeting and Reporting, Financia
		<u>Performance</u>
Law	General Corporate Law	Legislative Environment of the Organisation,
	*	Organisational Law, Commercial Law
	International Law	European Business Law, International Business
		Law, International Private Law
	Specialised Business Law	Media Legislation, Tax Law, Intellectual Property
	Specialisea Susmess Sam	Law
Business	International Business	European Business Affairs, International Business
<u>Dustriess</u>	international Business	Culture, Global Business Networks
	Business Strategy	Business Development, Business Entry Strategies,
	<u>Business Briategy</u>	Business Consulting
	General Business	Business Administration, Business Project,
	General Business	Business Management
Canadalized Caston		
Specialised Sector		Property Management, Maritime Logistics, Wines
Ed: /GCD		and Spirits Management
Ethics/CSR		CSR programmes, Business ethics, Sustainable
		development
Statistics/quantitative		Big data and business analytics, Quantitative
methods		methods for managers, Data modelling
Professional/personal		Creativity, Managerial behaviour, Effective
<u>development</u>		<u>communication</u>
IT/software applications		IT systems management, ERP, MATLAB
Other		Art, Sociology, History

Table 6. Master Programmes offered in 2014

	Management	Marketing and	Finance	Business Sector
Institution	And related	related	Economics	
<u>Name</u>			<u>Law</u>	
ESCP	HR	Comms	Mgmnt. Control	Arts and Creative
	Safety Mgmnt.	Creativity	Wealth Man.	<u>Biopharmaceutical</u>
	Intl. Bus Consulting	Media Mgmnt. Logistics	<u>Fiscal Eng.</u> <u>Fin. Techniques</u>	Energy Mngmnt Hospitality / Tourism
	Strategy	Logistics	Finance	Projects
	Entrepreneurship		Audit	Consulting
	Info. systems		Accounting	
ESSEC	Biz Admin.	Marketing	Fin. Techs	Intl Agrifood
	<u>Business</u>	Intl. Purchasing	<u>Finance</u>	<u>Urban / Real estate</u>
	Strategy	<u>Logistics</u>	Accounting	
HEC	Entrepreneurship	Nr. 1 . 4	Intl Bus. Law	
<u>HEC</u>	Intl. Bus	Marketing	Intl Finance Economics and	Arts and Creative Ind.
	Strategy		Finance	Public Affairs Sustainable Dylpmt
			Intl Law	Large Projects
<u>IESEG</u>	Intl. Bus.		Finance	Fashion
12020	Consulting		Accounting	Consulting
EDHEC	Consulting	Marketing	Fiscal Eng.	Arts and Creative Ind.
	Strategy	Intl. Purchasing	Man. Control	Consulting
	Global. Bus.		<u>Intl Law</u>	
EM Lyon	Intl. Bus.	<u>Marketing</u>	Fiscal Eng.	<u>Agrifood</u>
	Strategy	Services	Fin. Markets	Luxury
	Entrepreneurship	<u>Industrial</u>	Quant. Fin	Sports / Outdoor
	<u>Info. systems</u>		<u>Intl Law</u>	Intl Hospitality
<u>ESC</u>	HR	Marketing	Finance	<u>Technology/ innovation</u> <u>Energy Man / Mkt</u>
Grenoble	International	Strategic Mktg	rmance	Fashion
Grenovic	Consulting	Strategie Wikig		Biotechnology
	Bus. Development			Consulting
	Innovation.			Internet strategy
<u>Audencia</u>		Design/ creation	Risk and Finance	Sports / Outdoor
		<u>Logistics</u>		
<u>NEOMA</u>	Intl Bus.	<u>Services</u>	Wealth Man.	<u>Agrifood</u>
	Bus. development	Mktg. Res.	<u>Finance</u>	Arts
		<u>Logistics</u>	Banking	<u>Projects</u>
		Customer Service		
		/ CRM		
Kedge	Intl.	Corp. comms Marketing	Finance	Luxury
<u> 110ugo</u>	<u></u>	Brand Mgmnt.	<u>1 manee</u>	Sports / Outdoor
		Intl. Purchasing		Maritime
		Logistics		Wine
<u>ESC</u>		Marketing	<u>Finance</u>	
<u>Toulouse</u>		Communications.	Banking	
EM	HR		Man. Control	<u>Healthcare</u>
Strasbourg	Bus Admin.		<u>Finance</u>	Public admin.
	Intl. Bus.			
	Business Strategy			
	Strategy Entrepreneurship			
<u>ESC</u>	Intl.			
Montpellier	<u> </u>			
Skema	HR	Direct	Man control	Fashion
<u> </u>	Entrep and Innov.	Intl Mktg.	Wealth Man.	Hospitality/ Tourism
		Intl. Purchasing	Fin. Mkts	Sustainable Dvlpmt
		Logistics	Skema	Technology/ innovation
			Adv Corp. Fin	Family Business
nac = ::	.	a	Bus and Econ.	
ESC Dijon	Bus. Development	Global and neg.	Adv Corp. Fin	Wine

1	Entrepreneurship			
ESC La Rochelle	Entrepreneursing	Communications Intl.Purchasing	<u>Audit</u>	Intl. cooperation
ICN	Intl Bus. Bus. development			Sports / Outdoor
<u>IPAG</u>	Intl. Bus Bus. Mgmnt.	Intl. Mktg Mktg. Tourism Marketing / HR		
Telecom EM	Intl. Bus.	<u>Digital</u>	<u>Audit</u>	<u>Telecomms</u>
EM EM Normandie	Intl. Bus Info. systems	<u>Direct</u> Logistics		<u>Events</u>
ESC Pau ESC Troyes	anto, o, atenio	Global and neg. Mktg and Sales Social Media	Corp. Finance Auditing	Family Business Projects / Innovation
ESCE ESDES	None offered: Intl. Bus	Only through	Partner organisations	
ESG	Intl Bus. Consulting	Marketing Communications	Man. Finance Wealth Man.	Consulting Digital Business
	Strategy Entrepreneurship	Intl. Purchasing Media Mgmnt. Logistics Intl Logistics and	Weath Man.	<u>Digital Dushiess</u>
ESSCA	China-Europe Bus.	crisis Mgmnt.	Risk and Finance	Public Affairs
INSEEC	HR Strategy	Marketing Communications	Wealth Man. Finance	
<u>ISC</u>	None offered	D 114	Wealth. Man.	C W
<u>ISG</u>	<u>Intl. Bus.</u> Ops / HR	Brand Mgmnt. Purchasing	<u>Finance.</u> Wealth Man.	Consulting Digital Mgmnt. /web
	<u>Орз / ПК</u>	Comms/ Direct Negotiations	Audit. Accounting	Digital Mighilit. / WCU
FBS	HR	Communications.	Man. Finance	Healthcare
	Strategy	Intl. Mktg	Wealth Man.	Intl. Large projects
	Globalisation	<u>Logistics</u>	Man. Control	
	Intl. Bus		Intl Finance	
	Bus. development			

Source: Individual Grande Ecole websites.

Table 7. Range of MBA Programmes

	<u>MBA</u>	Executive	Global MBA	Specialised MBA
<u>Institution</u>		<u>MBA</u>		
<u>Name</u>	***	**	*	
ESCP ESSEC	<u>Yes</u>	Yes	International	No
<u>ESSEC</u>	<u>Yes</u>	Yes	Europe	International Luxury Brand Management
HEC	Vaa	Van Indl	<u>Asia Pacific</u> TRIUM	Hospitality Management
HEC	Yes Vac	Yes Intl		
<u>IESEG</u>	Yes Ves	Yes Vac	Yes Vac	
EDHEC EM Lyon	Yes Yes	<u>Yes</u> <u>Yes</u>	<u>Yes</u> <u>China</u>	MBA Asia Pacific
ESC ESC	Yes	Yes	Yes	WIDA Asia I acine
Grenoble	168	168	168	
Audencia		Yes	<u>European</u>	Responsible Management
NEOMA*	Yes	Yes	Luropean	responsible management
	Yes		Voc	Wines and Spirits
<u>Kedge</u>	108	<u>Yes</u>	Yes	Healthcare Management
ESC	Yes	Yes	Yes	Aerospace
Toulouse	168	168	165	Management Consulting (PT)
Neoma	Yes	Yes		<u>Management Consulting (1-1)</u>
EM	168	168		Pharmacy Management
Strasbourg				Healthcare Management
Strasbourg				Sustainable Development
ESC		Yes		Sustamable Development
Montpellier		105		
Skema		Yes		Project Management
ESC Dijon		Yes		1 Tojov Miningemeni
ESC La		100	<u>Yes</u>	Services Management
Rochelle				Tourism and Management
				Tourism (events)
<u>ICN</u>				<u>104110111 (010110)</u>
IPAG				Intl Trade - Luxury/ Latin America/ Energy
				Food Management
<u>Telecom</u>		<u>Yes</u>		
EM_				
EM				
Normandie				
ESC Pau	Yes	Yes		
ESC Troyes				
ESCE				
<u>ESDES</u>			<u>International</u>	
<u>ESG</u>				
<u>ESSCA</u>	<u>Yes</u>			
<u>INSEEC</u>	<u>Yes</u>		<u>Yrs</u>	
<u>ISC</u>				
<u>ISG</u>	<u>Yes</u>			
<u>FBS**</u>		<u>Yes</u>		

Source: Individual Business School website

Table 8. Overview of Courses Classified by Discipline and Spread by Degree Level

	Degree Level						
	<u>BA</u>		MSc		MBA		
	<u>N</u>	%	N	%	N	%	
Management							
Innovation Management and Strategy	<u>15</u>	<u>3.2%</u>	<u>31</u>	3.8%	<u>21</u>	<u>7.1%</u>	

^{**} Neoma is the merger of ESC Reims and ESC Rennes
*France Business school is the merger of ESC Clermont Ferrand amongst others and these schools have not yet appeared in the Classesments as they are recent mergers

General Management Courses	<u>25</u>	<u>5.3%</u>	<u>20</u>	2.4%	<u>8</u>	<u>2.7%</u>
Consulting and Change Management	7 13 3 6 6 6 3	<u>1.5%</u>	<u>23</u>	2.8%	<u>21</u>	<u>7.1%</u>
Human Resource Management	<u>13</u>	<u>2.8%</u>	<u>18</u>	<u>2.2%</u>	9 4 5 5 2	<u>3.1%</u>
<u>Entrepreneurship</u>	<u>3</u>	<u>.6%</u>	<u>22</u>	<u>2.7%</u>	<u>4</u>	<u>1.4%</u>
Performance and Quality Management	<u>6</u>	<u>1.3%</u>	<u>17</u>	<u>2.1%</u>	<u>5</u>	1.7%
International Management	<u>6</u>	1.3%	<u>16</u>	<u>2.0%</u>	<u>5</u>	1.7%
<u>Other</u>	<u>3</u>	<u>.6%</u>	<u>4</u>	<u>.5%</u>	<u>2</u>	<u>.7%</u>
Marketing						
Marketing Communications	<u> 19</u>	4.0%	<u>62</u>	7.6%	<u>8</u> <u>15</u>	2.7%
Supply Chain Management	18	3.8%	<u>54</u>	6.6%	<u>15</u>	<u>5.1%</u>
General Marketing Courses	<u>18</u>	3.8%	23	2.8%	<u>8</u>	<u>2.7%</u>
Marketing Strategy	<u>7</u>	1.5%	<u>28</u>	3.4%	<u>10</u>	3.4%
Digital Marketing	$\overline{2}$.4%	38	4.7%	2	.7%
Market Insight	$1\overline{4}$	3.0%	19	2.3%	6	2.0%
Sales	18 7 2 14 13	2.8%	<u>19</u>	2.3%	8 10 2 6 7 2	2.4%
Other	6	1.3%	12	1.5%	$\overline{2}$.6%
Finance	<u> </u>					
General Finance Courses	<u>33</u>	<u>7.0%</u>	<u>30</u>	3.7%	<u>16</u>	<u>5.4%</u>
Audit and Control		4.0%	37	4.5%	10	3.4%
Accounting	$\frac{\overline{20}}{20}$	4.3%	10	1.2%	11	3.7%
International Finance	2	.4%	14	1.7%	6	2.0%
Financial Institutions and Markets	8	1.7%		1.1%	$\frac{\overline{2}}{2}$.7%
Risk Assessment	1	.2%	<u>9</u> 11	1.3%	4	1.4%
Entrepreneurial Finance	$\frac{\overline{0}}{0}$.0%	12	1.5%	$\frac{1}{2}$.7%
Other	19 20 2 8 1 0	.2%	18	2.2%	6 2 4 2 5	1.7%
Business	_ _	<u>.= , </u>	<u> 10</u>	<u> </u>	<u>-</u>	11,70
International Business	<u>32</u>	6.8%	37	4.5%	<u>11</u>	3.7%
other	<u>52</u>	1.3%	37 16	$\frac{2.0\%}{2.0\%}$	8	2.7%
Law	<u> </u>	1.570	10	2.070	<u>U</u>	2.770
Corporate Law	<u>20</u>	4.3%	<u>9</u>	1.1%	2	<u>.7%</u>
Other	$\frac{20}{10}$	2.1%	$3\frac{2}{3}$	$\frac{1.176}{4.0\%}$	<u>2</u> <u>8</u>	2.7%
Economics Economics	10	2.170	<u> </u>	1.070	<u>U</u>	2.770
General Economics Courses	<u>18</u>	3.8%	3	<u>.4%</u>	<u>8</u>	2.7%
Other	15 15	3.1%	<u>3</u> <u>5</u>	<u>.5%</u>	<u>5</u> 7	2.3%
Professional/Personal Development	<u>22</u>	4.7%	<u>34</u>	4.2%	<u>23</u>	7.8%
Statistics/Quantitative Methods	$\frac{22}{32}$	6.8%	<u>34</u> <u>21</u>	2.6%		4.1%
IT/Software Applications	13	$\frac{0.876}{2.8\%}$	$\frac{21}{24}$	$\frac{2.076}{2.9\%}$	<u>12</u> 5	$\frac{4.176}{1.7\%}$
Corporate Social Responsibility	13 11	$\frac{2.8\%}{2.3\%}$	<u>24</u> <u>16</u>	$\frac{2.9\%}{2.0\%}$	<u>5</u>	$\frac{1.776}{3.1\%}$
Other	32	6.8%	72	$\frac{2.0\%}{8.8\%}$	12 5 9 13	3.1% 4.4%
		100.0%		8.8% 100.0%	295	100.0%
<u>Total</u>	4/0	100.070	01/	100.070	<u> </u>	100.070

<u>Table 9. Managerial Competencies – Rubin and Dierdorff/INSEAD</u>

Competency Category	Rubin and Dierdorff Examples	INSEAD Examples
Managing Decision- Making Process	Getting information; judging quality of things, services or people	Analysis by industry, market and competition (strategic insight); analysis problems in functional areas (business knowledge and tools)
Managing Human Capital	Coaching and developing others; developing and building teams	Developing your own and others' leadership talent; understanding, motivating and communicating within teams (leadership foundations and skills)
Managing Strategy and Innovation	Thinking creatively; developing objectives and strategies	Develop and sustain competitive advantage (strategic insight)
Managing the Task Environment	Communicating with persons outside org.; selling or influencing others	Strategic resources and alliances; corporate expansion, mergers and acquisition (strategic insight)
Managing Administration and Control	Evaluating information to determine compliance with standards; documenting or recording information	Performance monitoring and management; document and record information (finance: corporate accounting)
Managing Logistics and Technology	Inspecting equipment, structures or material; interacting with computers	Capturing value in supply networks; understanding role of technology in value creation (operations/supply chain management)

Table 10. Average Coverage of Managerial Competence

Managerial Competence	<u>N</u>	<u>%</u>	<u>SD%</u>
Decision-Making	<u>125</u>	<u>7.9</u>	3.0
<u>Human Capital</u>	<u>291</u>	<u>18.4</u>	<u>7.7</u>
Strategy and Innovation	<u>167</u>	<u>10.6</u>	<u>3.4</u>
Task Environment	<u>477</u>	<u>30.2</u>	<u>7.3</u>
Administration and Control	<u>381</u>	<u>24.1</u>	<u>5.7</u>
Logistics and Technology	<u>132</u>	<u>8.3</u>	<u>2.4</u>
<u>Other</u>	<u>9</u>	<u>.6</u>	<u>n/a</u>