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Higher Education in Management: The Case of Germany

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A History of Business Administration Education in Germany

The aim of this introductory section is to provide a general overview of the history of business administration as an academic discipline in Germany, as well as in part in the neighboring German-speaking countries of Austria and Switzerland. It illustrates the lines of development and trends that have shaped the subject of business administration over the last 100 years.¹

¹On this point and the argument that follows, see also Burr (2011).

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Institutionalization of Business Administration at the Beginning of the Twentieth Century

The institutionalization of business administration as a science in Germany took place at the beginning of the twentieth century (cf. Schneider 1997, p. 495 f.). Economic problems in companies had already been discussed two centuries earlier in the context of the cameralistic tradition. The very first works of economics (understood in a broad sense) in German that related to companies include those by Luther (1524), and later Marperger (1717), Ludovici (1752–1756), and Büsch (1792).

A key concern of business administration at its beginnings was the tension between practical orientation and theory orientation. On the one hand, there were expectations of entrepreneurial practice with regard to the development of solutions to problems for companies and the provision of qualified graduates. On the other hand, the scientific character of the new discipline of "business administration" was questioned in the beginning by universities, especially by established representatives of economics (cf. Mugler 1998, p. 48). In dealing with economics and business practice, business administration has now found its identity and research topics; it has become an independent science and has legitimized itself. It was not until the 1920s, however, that the technical term "business administration" was established in Germany and finally prevailed over other terms for the new discipline (cf. Mugler 1998, p. 49, as well as Witte 1998, p. 734).

Business administration as an independent discipline established itself at specialized commercial colleges and subsequently at universities. The first commercial colleges in German-speaking regions were founded in Leipzig (1898), Vienna (Export Academy 1898), Aachen (1898), St Gallen (1899), Cologne and Frankfurt/Main (1901), Berlin (1906), Mannheim (1908), Munich (1910), Königsberg (1915), and Nuremberg (1919) (cf. Mugler 1998, p. 46 f., as well as Witte 1998, p. 731, and Schneider 1997, p. 490). Today, business administration is represented at almost all state-run and private universities in Germany, Austria, and Switzerland as a research and teaching field (cf. Witte 1998, p. 732).

The development and establishment of professional journals (cf. Schneider 1997, p. 496, as well as Witte 1998, p. 744, fn. 54) such as Zeitschrift für handelswissenschaftliche Forschung (today: Zeitschrift für betriebswirtschaftliche Forschung, ZfbF; the English version containing different articles published in English is called Schmalenbach Business Review, SBR), founded in 1906, Zeitschrift für Handelswissenschaft und Handelspraxis (today: Die Betriebswirtschaft), founded in 1908, and Zeitschrift für Betriebswirtschaft (today: Journal of Business Economics), founded in 1924, also contributed to the institutionalization and legitimization of business administration as a science. Important professional journals in other German-speaking countries are Die Unternehmung (English title: Swiss Journal of Business Research and Practice, Switzerland), founded in 1947, and Journal für Betriebswirtschaft (IfB, Austria; in 2014, this journal was renamed Management Review Quarterly), founded in 1951. Furthermore, the founding of the German Academic Association for Business Research (Verband der Hochschullehrer für Betriebswirtschaft, VHB) on November 26, 1921 as a professional association and the advocacy of business administration professors was vital to the institutionalization of the business administration discipline, with an annual conference ("Pfingsttagung"-Pentecost conference) as a core event. This association also edits a freely accessible online journal named Business Research.

Since its foundation, business administration has always identified itself as a practice-oriented discipline. A core field of concern for business administration was and remains the development of methods and tools to solve operational problems in corporate practice. Examples here include economic assessment procedures, cost accounting procedures and calculation methods, organizational concepts, financial instruments, market research methods, and instruments of strategy formulation and strategy implementation but also methods of operations research and system dynamics approaches (cf. Witte 1998, p. 741).

Transformation of the Object of Knowledge or Research Topic Over Time

Modern business administration as an academic discipline in Germany had its origins in the question of how to run a private company using adequate methods and instruments, and more specifically, how the economic success of a company can be measured and assessed. Thus, the central issues and key questions of modern business administration after 1919 were:

- Elimination of fluctuations in value from accounting, especially after 1919 (in response to the high inflation in Germany between 1918 and 1923)
- The cost problem, principles of cost theory, cost accounting, and internal accounting, especially in the 1930s (cf. Schneider 1997, p. 498) (also in response to the requirement for German companies to work more productively in order to be able to compete with American and British companies)
- Entrepreneurial and corporate finance, for example, investment calculation methods, instruments for capital procurement, funding policy recommendations (in response to the financing problems of many companies after 1918 or 1929)
- Organization and management of private companies, for example, process organization and company organization structure (cf. e.g. Nordsieck 1934, as well as Kosiol 1962).

Business administration opened itself up to the management of public or non-profit companies as well as to the management of government authorities, and became interested in them some years after its foundation (e.g. works by Ernst Walb 1926 and Rudolf Johns 1938).

After World War II, the focus shifted increasingly to strengthening the foundations of theory and to reinforcing the scientific character of business administration. In the 1950s, Erich Gutenberg designed the "Grundlagen der Betriebswirtschaftslehre" (Basics of Business Administration) (cf. Gutenberg 1951, 1955, and 1969), in works that were later extended to three volumes, and comprised an understanding of the company as a combination of factors that built on microeconomics and the theory of monopolistic competition.

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This approach was the largely accepted paradigm within the German business administration community until the early 1970s. After this time, the overcoming of the paradigm shaped by Erich Gutenberg led to the emergence of manifold and even competing schools of thought (cf. Mugler1998). Among these are: the decision logic approach (e.g. Laux and Liermann 1987), the decision theoretic approach (Heinen 1984), the social and behavioral-oriented approach (e.g. Kirsch 1970/1971), the contingency approach of organizational theory (Kieser and Kubicek 1977), the holistic-oriented management approach/systems theory (Ulrich 1968), the marketing approach (Meffert 1977), and approaches of operations research and system dynamics (e.g. Hanssmann 1982; Zahn 1972). These new ideas were accompanied by an increasing orientation towards empirical research, largely promoted by, for example, Eberhard Witte and colleagues (e.g. Witte 1968, 1973).

In the past few decades, business administration has also opened itself further to other disciplines. Moreover, the controversial opening towards economics and other disciplines such as engineering, law, and social sciences should be noted. Even the further opening of business administration towards psychology, neuroscience, and evolutionary biology within, for example, interdisciplinary management training and management research has been under discussion for several years. We believe that the idea of sustainability—for example, conducting business in a post-growth economy (Jackson 2009)—presents a complex theoretical challenge to our discipline, where a great deal of future work is to be conducted and where indeed an intensive interdisciplinary collaboration is required (for an initial attempt, cf. e.g. Müller-Christ 2010). Progress in this direction could then also have a significant impact on the content of future teaching programs.

Internationalization of German Business Administration

After its foundation at the beginning of the twentieth century, business administration in German-speaking countries very quickly oriented itself internationally and was respected and cited abroad until the World War II (e.g. in Japan, Scandinavia, and the USA). After World War II, German business administration was almost entirely confined to the German-speaking world. It was not until the 1980s that business administration in Germany moved out of its international isolation and oriented itself more towards other European countries, Japan, and especially the USA. Today, the question arises whether German business administration will take on the form of Anglo-American management studies, including their publication standards, research methods, and theories, to an even greater extent in the future and will thus become merged with international management research, which is dominated by the USA. However, it is also possible and cannot be ruled out that German business administration will find a more independent way forward in the future.

The Supply Side

The Structure of the Education System

Germany comes from a diploma tradition,² especially in the field of engineering, where the German Diploma degree was considered a successful trademark. Following the Bologna protocol, almost all German universities switched to bachelor's and master's programs, with the exception of the University of Greifswald and the Technical University of Freiberg, which still offer a diploma degree in business administration (TU Dresden still

² The traditional diploma curriculum usually lasted 8–12 semesters. The student was able to complete the full undergraduate and graduate program at one university. After 4–6 semesters there was an intermediate examination (*Vordiplom*), which had to be passed in order for the student to continue the program of study. However, this intermediate examination was not (like the bachelor's degree today) recognized as the qualified completion of a degree. Typical of the old diploma curriculum was a relatively small bureaucracy and high flexibility in the temporal organization of studies, as well as many choices in determining the combination of subjects. Students enjoyed a high degree of academic freedom. The graduate part of the program after the *Vordiplom* had fewer mandatory deadlines and rules for students than the currently established bachelor and master's degree programs. The number of tests during the program was also significantly lower. At the end of the diploma, in which the entire curriculum (usually 4–6 semesters after the completion of real exam. For students, this meant a very intensive learning effort at the end of the program, but it helped them to understand the relationships between the different subjects.

offers a diploma degree in business engineering). The bachelor programs can, for example, be structured as three-year (six-semester) programs and the master's programs as two-year (four-semester) programs, which are equivalent to 180 and 120 ECTS points, respectively. Of course, it is also possible to structure the bachelor programs as seven- (210 ECTS) or eight-semester (240 ECTS) programs, as long as the master's programs offered by the same institutions do not then last longer than three (90 ECTS) or two semesters (60 ECTS), respectively. Note that, in reality, many students exceed the regular timeframe due to things like failed exams or part-time work engagements. In 2011, the median timeframe for students of business administration was approximately 11 semesters (see Statistisches Bundesamt 2015, p. 16).

Master's programs are mostly offered as a master of science or master of arts, and less frequently as master of business administration (MBA) programs. This implies that full-time master's programs are conceptualized as consecutive and direct follow-ups to the bachelor programs, without any requirements for practical work experience. Exceptions are, for example, offered by the Mannheim Business School, private universities such as the European Business School, and WHU Otto Beisheim School of Management, or universities of applied sciences (see below) such as the Hochschule fürWirtschaft und Recht/Berlin School of Economics and Law, where admission requires a minimum of three years' work experience. Part-time MBA programs are offeredby the like of University of Potsdam, RWTH Aachen, and the University of St Gallen (Switzerland).

Doctoral degrees can be achieved at state-owned universities and those private universities that have received the right to award doctoral degrees from the federal states (see below). Traditionally, only a low percentage of those who have achieved a doctoral degree remain in academia; a much higher percentage move over into business practice. This can be seen as an important lever for the transfer of academic knowledge to practical applications. However, more recently, there has been a trend to follow a more American-like system in which doctoral students are assumed to have much higher academic ambitions.

Academic institutions that have the right to award doctoral degrees also have the right to award "habilitation", which is a kind of second doctoral degree that is regularly required at universities in order to become a full professor. However, universities have recently tended to accept habilitation-equivalent qualifications, such as a high number of qualified journal publications. This applies in particular to applicants who began their academic careers outside of Germany.

Main Suppliers of Business Education

Currently, bachelor programs are offered by approximately 200 institutions in Germany and master's programs in business administration and related fields are on offer at approximately 110 (see https://www.bwl-studieren. com). The right to award doctoral degrees in business administration is retained by approximately 70 university-like institutions. University-like institutions comprise state-owned universities and technical universities, private universities such as the University of Witten-Herdecke or the Zeppelin University at Friedrichshafen, and private business schools such as the WHU Otto Beisheim School of Management and HHL Leipzig Graduate School of Management. A list of these university-like institutions is provided in the Appendix.

While (general) universities usually offer programs entitled "business administration", technical universities (e.g. Aachen, Berlin, Darmstadt, Dresden, Karlsruhe, and Munich) tend to focus on business engineering programs that combine business and economics elements with a basic education in an engineering discipline, such as mechanics or electrical engineering. Alternative programs pursue a combination of business and economics on the one hand and information technology on the other ("business informatics"). In both cases, it is expected that students will find it easy to get jobs in technology-oriented firms.

A special case of a state-owned university is Fernuniversitaet Hagen, which concentrates on distance learning. Almost 20,000 students enrolled in their programs are business and economics-oriented (making it the largest faculty³ in Germany), approximately 2,000 of whom live outside of Germany.

³Note that most universities in the German-speaking countries prefer the term "faculty" to the term "school". The Mannheim Business School and the Goethe Business School (at Frankfurt) are private institutions founded by and closely related to university faculties, with the aim to offer

An important development within the German academic landscape is the foundation of several private universities, in many cases with a dedicated formation as a business school. Table 3.1 lists those institutions that have received the right to award doctoral degrees. In the past, a minority of these universities and schools have come into the news due to financial difficulties or irregularities.⁴ In general, however, all of these institutions have proven to be strong competitors to state-owned universities without losing their dominant role in terms of the overall number of students. WHU Otto Beisheim School of Management, for example, has grown considerably in the last decade-from 16 faculty members (full, junior, and adjunct professors) in 2006 to 52 in 2015-and has an institutionalized and long-standing partnership (since 1989) with one of the top schools in the USA, the Kellogg School of Management at Northwestern University. These universities and schools usually tend to have a strong international orientation and mirror much more the US university model than do state-owned German universities. Of course, due to the relatively high tuition fees, the attractiveness of this model is limited to those students who have a wealthier background, are willing to take bank credit, or who receive a stipend. (In the early 2000s, some of the federal states in Germany introduced moderated tuition fees for their universities but these were later abolished.) Private business schools also tend to be engaged in executive education programs, which is usually not the case for state-owned universities.

All the above-mentioned institutions face severe competition from the so-called "Fachhochschulen"/"Universities of Applied Sciences" (UAS). Approximately 160 of these (state-owned or private) institutions in Germany offer bachelor's programs and approximately 50 offer master's programs on a full- or part-time basis. The professors usually have a doctoral degree and a number of years of practical experience; after becoming professors, they conduct some research, but the research projects are much more applied than those of university professors. UAS thus promise

fee-based part-time study programs. Private universities with a sole focus on business administration-related programs, such as the ESMT European School of Technology and Management or the Cologne Business School, tend to name themselves "school".

⁴Due to these problems, some of these projects have failed relatively quickly, such as the private Hanseuniversität Rostock.

(status 2015)	
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Table 3.1	

					Tuition fees (year 20	15)
		Number of	Number of			
	Founded in	students	faculty	Accredited by	Bachelor	Master
EBS European Business School, Oestrich-Winkel	2010	Approx. 2,00	027 professors	German Council of	BA General Management	MA Automotive Management
https://www.ebs.edu/				Science and	BA General	MA Finance
				Humanities,	Management	MA Management
				EQUIS,	(International	MBA
				FIBAA	Business Studies)	Cost examples:
					Cost examples:	Full-time MA
					BA General	Management:
					Management:	€24,640;
					Full-time: €42,490;	Part-time MA
					part-time: €37,990	Business and
						Innovation: €29,500
ESCP European School of	1819	137	11 academic	equis,	BA Management	MA Management
Management Campus Berlin	(Paris)	(winter	chairs	AMBA,	Cost example:	MEB Master
http://www.escpeurope.eu/		2012/2013)		AACSB	€38,750	European Business
						MBA
						Cost example:
						MA Management:
						€28,370
ESMT European School of	2002	244	34 faculty	equis,	n/a	MA Management
Technology and Management			members	AACSB,		MBA
https://de.esmt.org/				AMBA,		Cost examples:
				FIBAA		MA Management:
						€25,000
						MBA: Program and
						Tuition Individual
						€38,000, Corporate
						€DU.UUU

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					luition fees (year 20	115)
	-	Number of	Number of			
	Founded in	students	faculty	Accredited by E	3achelor	Master
Frankfurt School of Finance and	1957	1,486	54 professors	German	BA Finance and	MSc Finance
Management		(winter		Council of	Management	MA International
http://www.frankfurt-school.de/		2014/2015)		Science and	BSc Banking and	Business
content/de				Humanities,	Finance	MSc Management
				FIBAA,	BSc International	MBA
				AACSB,	Management	Cost example:
				EQUIS	BSc Business	MSc Management:
					Administration	€32,500
					for Professionals	
					BSc Management	
					Philosophy and	
					Economics	
					BSc Business	
					Administration	
					Focus Auditing	
					BSc Business	
					Administration	
					BSc Business IT	
				0	Cost examples:	
				Ш	3A Finance and	
					Management,	
					eight semesters:	
					€18,950; four	
					semesters: €14,800	
				ш	3Sc Business	
					Administration	
					(International	
					Management):	
					€46,650	

					Tuition fees (year 20	115)
	Founded in	Number of students	Number of faculty	Accredited by E	3achelor	Master
HHL Leipzig Graduate School of Management http://www.hhl.de/en/home/	1898 (re-establishe 1992)	Approx. 600 d	More than 20 professors, four junior professors	ACSB, r ACQUIN	va	MSc Management MBA General Management Global Executive MBA General Management Cost example: MSc Program: €25,000
Jacobs University Bremen https://www.jacobs-university.de/	2001	1,164 (Winter 2015/1016)	106 professors, 198 research and teaching staff staff	German Council of Science and Humanities, ACQUIN	BSc Industrial Engineering and Management BA Global Economics and Management BA International BA International Business Administration Cost example: BSc Industrial Engineering and Management: €20,000	MSc Supply Chain Engineering and Management Cost example: €20,000
Kühne Logistics University https://www.the-klu.org/	2010	Approx. 200	15	German Council of C Science and Humanities, FIBAA	BSc Management Cost example: €39,840	MSc Management Cost example: €23,920

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				F	uition fees (year 20	15)
		Number of	Number of			
	Founded in	students	faculty	Accredited by B	achelor	Master
Steinbeis Hochschule Berlin http://www.steinbeis.de/de.html	1998	6,500 (2013)	62	FIBAA (all programs at SIBE) C	BA Business Administration B.Eng. Business and Engineering cost example: BA Business €10,980	MBA MBA General Management MBA International MBA E Business Engineering MSC Innovation and Technology Management Cost example: MBA General Management: €16,200
University of Witten/Herdecke http://www.uni-wh.de/wirtschaft/	1983	2,107 (summer 2015)	20	German Council of Science and Humanities, AQAS O	BA Business economics BA Philosophy, Politics and Economics Cost example: BA Business Economics:	MA Management Cost example: €24.840
WHU Otto Beisheim School of Management http://www.whu.edu/	1984	1,401 (2015)	49	AACSB, FIBAA, EQUIS	BSc International Business Administration Management cost example: €35,400	MSc Management Cost example: €19,200 (90 Credits); €23,600 (120 Credits)

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					Tuition fees (year 20	15)
		Number of	Number of			
	Founded in	students	faculty	Accredited b	y Bachelor	Master
Zeppelin University Friedrichshafen	2003	1,308	14	ACQUIN	B.A. Corporate	MSc Corporate
https://www.zu.de/		(Winter	(Departmen		Management and	Management and
		2014/15)	of Economic	s)	Economics	Economics
					BA	MA General
					Communication,	Management
					Culture and	Cost examples:
					Management	CCM Programs
					Cost examples:	€15,800;
					BA Communication	CME Program and
					and Cultural	General
					Management	Management
					(CCM): €29,600	(GEMA) Program:
					Bachelor in	€19,800
					Corporate	Executive Master's
					Management and	Programs (eMA):
					Economics (CME)	eMA Business and
					Program: €35,600	Leadership for
						Engineers, eMA
						Digital Pioneering,
						eMA Mobility
						Innovations, eMA
						for Family
						Entrepreneurship,
						eMA in Intersectoral
						Leadership and
						Governance, eMA
						in Retailing

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to provide a more practically oriented education and tend to have a much higher professor to student ratio. UAS such as ESB Business School at Hochschule Reutlingen or HTW Berlin are highly reputed within the German business education landscape, especially from the perspective of business firms as future employers.

From the perspective of (technical) university faculties of business administration/management/economics-and in line with the very early debate mentioned above-the pressure coming from the UAS is occurs in different aspects. First, within universities it is often argued that the really ambitious research is conducted in the natural sciences, engineering disciplines, and liberal arts fields such as history, sociology, and political science. In contrast, "business administration" is seen as a field that does not really belong in a university and that could be better offered at a UAS. Thus, in order to legitimize it as an academic discipline, university professors of business administration must engage in academic research and publish in high-ranked international journals, which may distract them from engaged teaching and widen the practical gap with the teaching found at UAS. Second, the unique selling point that (technical) universities have against their competitors is their right to award a doctoral degree/PhD, as mentioned above. In the past, it was relatively easy to argue that former UAS students did not possess the skills to conduct qualified research and could therefore not be accepted as doctoral students. This line of argument is more difficult now due to the Bologna premise that bachelor's and master's classes at different types of institution must be counted as comparable. Moreover, federal state governments increasingly take the position that UAS should also have the right to award doctoral degrees conditional upon their having sufficiently qualified advisors within their own faculties or collaboration agreements with (technical) universities. All these aspects have come together in recent recommendations by the German Council of Science and Humanities (Wissenschaftsrat) to merge the business education at the University of Saarland and the HochschulefürTechnik und Wirtschaft within the same federal state, as well as in the actual merger of two institutions (University of Cottbus and University of Applied Sciences Senftenberg) into the renamed BTU Cottbus-Senftenberg in eastern Germany.

A final supplier of business education worth mentioning here is the so-called "Berufsakademien"-Universities of Cooperative Education (UCE). While many curricula of (technical) universities and UAS require a company internship, UCE are based on the idea that academic studies and their practical applications are tightly connected. Students sign a contract with a company that guarantees a small salary and, following three months of academic training, the students gain employment in internship phases that usually last three months. The fields of study are often quite specialized, such as the real estate business or financial services management. The bachelor's exams are not always counted as academic exams, with the notable exception of the Dual University of Baden-Württemberg (one of the 16 federal states in Germany) and a couple of other UCE that follow this model. Good results in exams from these institutions may then open the gates to master's and doctoral programs at (technical) universities. More recently, UAS have also started to offer cooperative programs and thereby challenge the institutional core of UCE, the largest provider of such programs among the state-owned UAS being HWR Berlin.

Typical Programs Offered

As mentioned above, bachelor's programs are often structured as threeyear (six-semester) programs, at least in traditional (technical) universities; at UAS, the bachelor's programs often last seven semesters, including one internship semester. Content-wise, they tend to have a general orientation,⁵ whereas master's programs (typically two years/four semesters or three semesters, respectively) sometimes have a stronger focus, especially at UAS; typical examples (taken from HWR Berlin) would be "International Marketing Management" or "International Business and

⁵Note that this "general orientation" does not imply an extended inclusion of liberal arts subjects, as is usually the case in the US system. One reason for this—and for the fact that many bachelor's programs are scheduled only for six semesters—is that the German high school system traditionally spans 13 years and was assumed to include more liberal arts subjects than in, for example, US high schools. Recently, the number of school years has reduced from 13 to 12, making this argument somewhat obsolete. However, due to the many criticisms that have arisen, it remains to be seen whether the 12-year timeframe will hold as the general model.

Consulting: Strategic Management". At the bachelor level, mandatory courses lay the methodological foundations in mathematics and statistics and provide an introduction to business administration sub-disciplines such as accounting, investment and finance, marketing, production management and organization, as well as to economics sub-disciplines (micro- and macroeconomics, economic policy), business informatics, and private law. In addition, students must choose a number of compulsory electives as well as a small number of free electives, opening at least some marginal space for subjects from other disciplines. Master's programs follow a similar logic at a more advanced level. Programs of business engineering or business informatics tend to follow a three thirds rule—one third of classes focus on business-related subjects, one third on technical subjects such as informatics, electrical or civil engineering, and one third on methodological foundations (mathematics, statistics, etc.). Bachelor's (master's) theses are written within a two- or three- (three- or six-) month timeline, usually with a preparation phase of two to three weeks and in some cases, but by no means always, followed by an oral disputation. Many students are interested in writing their theses during an internship at a company, which often requires some negotiation with their advisors due to the academic standards that need to be fulfilled.

At the bachelor level, classes are mostly taught in German, especially at universities; at the master's level, there is a clear tendency to offer classes in English as well. Many universities and UAS require or recommend at least one semester abroad. Since this requirement is easier to integrate into a six-semester schedule, German universities face a structural problem because their foreign exchange partners may find it more attractive for their own students to have bachelor's-level offerings in English, making exchange agreements with German universities less attractive. Most student exchanges are, of course, organized within the Erasmus framework. However, foreign students studying in the German language may find it difficult to achieve good grades. The question as to whether universities should increasingly move into English-language teaching or continue to expect foreign students to learn German is highly debated at the moment. Some faculties also run double-degree programs with partner institutions in countries such as France, Spain, or the Netherlands. In some cases, universities have established a compulsory internship in the range of two to three months. UAS tend to have a full internship semester. A short internship (less than three months) is sometimes difficult to realize, due to the longer duration requirements of business firms. Many university students suffering from this problem therefore take a semester out.

Traditionally, doctoral degrees in Germany did not require the successful completion of a dedicated study program; instead, the dissertation topics were negotiated with individual academic advisors and the candidates had to defend their thesis in an oral disputation and/ or pass a number of oral examinations. Thus, doctoral candidates did not receive a systematic methodological training comparable to doctoral students in other countries such as the USA. Today, a number of universities offer a structured postgraduate study program or require their doctoral students to achieve a certain number of credit points to pass courses on research methods or other topics relevant to their academic work. The Ludwig Maximilians-University in Munich, for example, offers an ambitious "Master of Business Research" degree for students with a qualified master of science degree or students with a qualified bachelor degree who have passed an additional number of foundational master's classes.⁶ Smaller universities that cannot afford to offer such a program can either collaborate with other universities or rely on course offerings from the German Academic Association for Business Research (VHB) (see http://vhbonline.org/ en/events/the-doctoral-program/). The VHB has recently also established a "science angel" program to offer additional advice to doctoral students independent from their direct doctoral advisors.

Given these developments in the field of doctoral education, chairs that employ assistants who want to achieve a doctoral degree—which is the rule—face a conflict of interest: The more these students participate in doctoral courses, the less time they have to work for their chairs. The typical faculty structure of German universities is explained further below.

⁶See www.mbr.bwl.uni-muenchen.de

Current Development of Pedagogy

Traditionally, the German university system is dominated by lectures given by professors and exercises/tutorials supervised by their teaching assistants. In a way, this is efficient because it allows a great deal of information to be provided within a short timeframe. The downside is, of course, that there is often an information overload and students become overwhelmed by hundreds of PowerPoint slides every week. Students tend to find it difficult to distinguish between what is important and what is not; they simply rely on memorizing in order to pass the exams, without reading the additional literature recommended by the lecturers. No wonder, then, that the German education system at (technical) universities has the reputation of being uninspiring, and that private universities, UAS, and UCE see a competitive advantage in their higher quality of teaching.

Of course, public universities have, at least to a certain degree, reacted to the ongoing criticism. First, most faculties have established the position of a teaching dean who is the first addressee for all teaching quality-related complaints by students. Second, teaching evaluations and rankings now put pressure on those professors who perform poorly. Teaching awards often serve as an additional incentive. Third, many universities have established pedagogy-oriented modules that can be taken on a voluntary basis or are mandatory stepping stones in the career paths of young faculty members. The VHB also offers workshops with a dedicated focus in teaching-related topics on an annual basis. In sum, all these activities have also led to much more teaching variety at public universities. Case studies, simulation games, experiments, workshop formats, student presentations, practitioner talks, panel discussions, excursions, e-learning, and similar teaching tools can now often be found in and outside of classrooms, depending on the number of students that are enrolled. In general, it is safe to say that more advanced bachelor's and master's classes leave plenty of room for non-traditional teaching methods. In basic bachelor's courses, however, it is still the case that there can be up to 1,000 students in a classroom, at least at the larger universities.

A fundamental issue is how students learn to read academic literature and develop writing skills and it remains a challenge to provide adequate exam and feedback techniques. For example, do students have the opportunity to write elaborated papers before working on their bachelor's or master's theses? How can it be ensured that students really learn from these experiences? Since the general demise of oral exams, how can we teach students to withstand pressure in face-to-face communication? These questions still require a satisfactory answer. One thing is sure: the more we move in the direction of the "inverted classroom" and direct interaction, the more important the professors' pedagogical skills become (cf. e.g. Brynjolfsson and McAfee 2014, chapter 12).

Faculty

In 2008, approximately 1,150 full-time professors of business administration were employed at universities in German-speaking countries, 911 of them in Germany.⁷ This number may have increased in recent years; however, more recent data are not available.⁸ Table 3.2 shows the average number of business administration-oriented professors per faculty. (Note that many faculties also employ professors of neighboring disciplines such as economics, business informatics, and law, and have therefore an umbrella denomination such as "Economic Sciences" or "Economic and Social Sciences"; only a minority of universities, such as Munich or Mannheim, have genuine faculties of business administration.⁹) Most of the professors in non-private universities are chair professors with an irredeemable contract-they are Beamte (civil servants). More recently, many universities have also engaged a small number of junior professors who are evaluated after three years and can then be employed for another three-year period; only a very small percentage of this group has a tenuretrack option. To be employed as a junior professor is an alternative to the

⁷ In this section, the term "faculty" is used to characterize the group of people who do the teaching and research at academic institutions. See also note 3, above.

⁸Note that the VHB had approximately 2,300 members in 2014, including, however, postdocs, and junior as well as retired professors (at the university level). On the other hand, not all professors have to be VHB members.

⁹ Similarly, statistics providers such as Statistisches Bundesamt, on which we rely in this chapter, often use broadly defined terms such as "Economics and Business Administration", indicating that the disciplinary differentiation may be less complete than suggested in the introductory section above.

Staff in business administration	Average number of	
sector	professors	Std. Deviation
All professors	17.2	9.1
Full professors	12.2	5.8
Junior professors	1.4	2.0
Other kinds of professor	3.6	4.5

Table 3.2 Facts and figures about selected German business schools, n = 65

Source: Based on own analysis of information provided on the websites of n = 65 German universities (see Appendix), conducted in January 2016 Note: Staff figures are based on core business administration chairs (excluding chairs of economics, information systems and operations research, statistics, economic education, and economic sociology). Other kinds of professor

includes honorary professors, guest professors, private lecturers, additional professors.

traditional postdoc model that should lead to the "habilitation"—a second doctoral degree that was until recently a must-have to successfully apply for a chair professorship (see above).

Since the average number of professors is low in comparison to universities and business schools in countries such as the USA, and since most professors are chair professors, these academics usually have to a cover a broad area of topics at least in their teaching, dealing with fields such as finance or marketing (in their entirety). These professors also tend to have a heavy teaching load, usually nine hours per week. (Some universities in the federal states of Bavaria and Baden-Württemberg also have teaching professors with an even heavier teaching load of up to 12 or 16 hours per week, but lower expectations regarding their research productivity.) Given, then, that the teaching program repeats every two semesters, many professors indeed teach a relatively high number of different courses. Reductions to this heavy teaching load are given when the professor holds a specific position, most importantly that of being the dean. Other approaches to reduce the teaching load, such as remunerating extraordinary success in research, only occur at the early stages. Junior professors and teaching assistants usually have a teaching load of four hours per week, allowing them to devote more time to their research and to developing their individual careers. Chair professors have assistants, usually between two and five of them, depending on the faculty budget and their negotiating power during the hiring process or upon the occasion of external job offers. These assistants support the professors in

various ways, including performing exercises that supplement the professors' lectures. The assistants usually have employment contracts that last from three to six years and aim to finish their dissertation projects within this timeframe. Some junior professors also have at least one assistant, depending on the federal state in which they are employed.

Further teaching support comes from contract teachers who offer basic routine courses, as well as from honorary professors who have qualified jobs in business firms or other institutions and at the same time at least some academic orientation (beyond a doctoral degree, which is an essential). To maintain their professorship, they must teach at least one class per year, which is usually done within a low number of time blocks. Honorary professors do their teaching without remuneration, whereas contract teachers are paid on an hourly basis. Assistants are paid on a fixed-income basis with a little variation, depending on former qualifications and family status. Junior professors (income level "W1") receive a fixed income and additional pay after a positive three-year evaluation, chair professors ("W3") and professors in between the junior and chair professor level ("W2") receive a basic income and additional pay depending on negotiation, research, and teaching performance, as well as the acceptance of specific tasks such as the dean's, vice-president's, or president's jobs. The 2015 average pre-tax income per month for junior professors was €3654-4096, for chair professors €6294-7561 and for W2 professors €4891–5599, depending on the federal state (http://www.w-besoldung.net/forschung/zahlen-zur-w-besoldung/). Recent discussions have centered around two issues. One is that the basic fixed income is considered too low in comparison to other civil servants such as school teachers, given the significantly higher qualification that is required to fulfill a professor's responsibilities. The second issue is that it is unclear how to measure research and teaching performance (see also the brief discussion on ranking and accreditation below). In practice, the most important influence comes from the amount of research funding received, a criterion that might put business professors at a disadvantage in comparison to other disciplines in which the average amount of funding is significantly higher, as is usually the case in the engineering sciences.

Private universities such as WHU Otto Beisheim School of Management usually employ W3 and W1 professors, universities of applied sciences (both state-owned and private) employ professors on a W2 and W3 level. Both types of institution tend to have a significantly larger faculty than state-owned universities, mimicking the academic system in other countries such as the USA. The salary at private universities is freely negotiable and tends not to be below the income at state-owned universities, compensating to a certain extent at least the risk that the private schools face an uncertain future. In the case of UAS, the income level might also be influenced by the former income of their applicants in business firms or other institutions. Note that professors at UAS are required to have a doctoral degree and at least three years of employment outside the university. Their teaching load is significantly higher than in universities, reflecting the lower research expectations. However, the actual differences in teaching load are difficult to quantify, given that at UAS a high content overlap between courses seems to be more accepted than at universities.

In sum, it seems that the high teaching load and low salaries compared to international standards in connection with the state servant system at public universities are not seen as attractive by foreign academics. Thus, faculties at German universities and business schools tend to be much less internationalized than in other countries (not taking into consideration those few universities that run hubs in other countries, such as the University of St Gallen in Singapore).

The Demand Side

Students Taking Courses in Business Administration

Business administration is by far the most popular subject to study in Germany.¹⁰ Table 3.3 shows that approximately 10 % of all students study economics and business administration and related subjects, with economics students certainly only being a minority. (Focusing only on the top 20 study programs, the numbers are as follows: business administration 232,000 students; economics 91,000; international management 45,000, industrial engineering with a focus on management 39,000; Source: Statistisches Bundesamt 2015a, p. 36). At the bachelor level, UAS students dominate, while at the master's level universities attract more

¹⁰ http://de.statista.com/statistik/daten/studie/2140/umfrage/anzahl-der-deutschen-studentennach-studienfach/

c102/4102 mJa								
	Winter terr	n 2014/2015		Of these:				
				Bachelor	Master's		Bachelor	Master's
	In total	Female	Foreign	(University)	(University)	PhD	(NAS)	(NAS)
All students	2,698,910	1,290,376	321,569	786,737	322,209	111,426	778,425	115,561
conomics and	429,676	209,372	50,927	117,661	52,765	5,852	198,857	32,452
Administration								
ndustrial	42,250	10,936	4,400	8, 156	4,279	84	23,026	4,233
Engineering								
	-		į					

Table 3.3 German and foreign students according to their study programs and intended academic degrees in the winter

Source: Statistisches Bundesamt 2015a, pp. 46–47

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students. The percentage of female students is relatively high, compared to the natural sciences and engineering disciplines, including business engineering. Approximately 12 % of all students of economics and business administration are non-German, which is about twice the number of German students enrolled in foreign study programs (see Statistisches Bundesamt 2015b, pp. 32–33).

First-semester students tend to be increasingly younger, due to shorter school education (12 instead of the former 13 years) and the omission of mandatory military or civil service (for male students). Usually, prospective students send their applications to multiple universities or UAS in order to ensure that they are accepted at least somewhere. From the supply-side perspective, this creates some uncertainty because it remains unclear how many students will eventually accept the offer and how much the capacities should be overbooked in order to achieve the preplanned take-up rate. At the same time, the state-owned institutions have an interest in accepting more applicants due to a remuneration scheme that relates government payments to the number of first-semester students. This means that state-owned universities tend to be ambitious for growth and to avoid (re-)defining themselves as smaller, but solely research-oriented institutions with a clear focus on elite students.

As noted above, state-owned universities and UAS do not charge tuition fees-either from German or foreign students-apart from a small basic fee in the range of €100-300 that usually includes a semester ticket for local public transport. The Deutsche Studentenwerk, a major student service organization with 58 branches in Germany, reports that the average monthly living cost for German students in 2012 was €794, with big differences between cities, and that the average income was €864 for German students and €725 for foreign ones (Middendorff et al. 2013). The relatively high income of German students comes from parental support, from an interest-free state credit where repayments are reduced in case of very good study grades or early exams, from other stipends, and/or from student jobs. Of course, these jobs distract students from their studies, which often leads to a tension with the supply-side expectations regarding students' engagement in terms of class attendance and preparation. Part-time study programs are generally not available at state-owned universities or UAS.

Labor Market for Business Administration Graduates

In general, it is often said that business administration graduates still have good employment opportunities, especially if students have a quantitative or technical orientation. The remuneration consulting firm Personalmarkt reports that the average annual income level of business engineering (business informatics) graduates with less than two years of professional experience before tax is €43,631 (42,807),¹¹ whereas the average level of business administration graduates lies at €37,535 (Staufenbiel 2014). Business administration graduates with professional experience of between two and five years earn on average €45,304 and those with more than five years of experience €70,488. It is also reported that UAS graduates earn on average less, and that the standard deviation is quite high, implying that individual negotiation skills play an important role (Staufenbiel 2014). Whether these results are really reliable remains unclear; for example, based on the so-called KOAB data (Graduate Survey Cooperation Project), Schomburg (2011) comes to somewhat different results regarding the relationship between university and UAS graduates' professional salaries.

As optimistic as these numbers may appear, there is no doubt that business administration graduates also suffer from the so-called "generation internship" problem—that they move from one unpaid internship to the other without getting a regular (paid) employment contract. Although there are no robust data available, this problem might be of particular relevance to graduates of bachelor programs, leading them into consecutive master's programs, which is certainly not in line with the intent of the original Bologna reform to allow students with a bachelor degree to find a qualified professional job.

Employers' Investments in Continued Management Education

In Germany, particular importance is attached to a profound and substantiated initial education. Unlike the USA and Great Britain, the

¹¹The future prospects of business engineering are further explored in Baumgarten et al. (2015).

concept of life-long and extra occupational learning is less developed in Germany. This is the result of the comprehensive and profound initial education, which many people benefit from for longer in their work life. In view of this, many companies expect their employees to train themselves and to finance their own appropriate training. Thus, the most common case is that applicants for a management position and for specialist tasks fund their basic university degree program themselves and enrich it with practical experience (e.g. an internship or work experience before commencing their studies). It is only since 2000, when the bachelor/ master's system was introduced in Germany, that some companies have considered financing MBA education for deserving employees. In most cases, however, this is only done for particularly promising young talent and top managers. After 2000, individual German companies also established corporate universities and bundled together their education and training activities. However, corporate universities cannot be compared with private and state universities, as they have no right to award doctorates, for example. Since corporate universities were established with high expectations, things have gone quiet around these facilities in recent years. Sometimes, companies participate financially in the founding of new private universities (e.g. ESMT Berlin) or entrepreneurs donate money as private individuals for the founding of such universities (e.g. WHU Otto Beisheim School of Management, Kühne Logistics University), which sometimes even accept the name of their sponsor. Moreover, there have been powerful attempts by private companies to influence state-run or private universities. In this way, companies want to ensure that the education is practice-oriented and that graduates can be employed quickly in the company. Thus, the bachelor/master's system was very strongly demanded by both private industry and government higher education policy in Germany, while many professors wanted to retain the diploma program. The influence of private industry also occurs via university councils (the supervisory bodies of universities) in whichbesides professors, student representatives, and representatives of research assistants-high-level managers of private companies and celebrities from public life can also be found.

Regulatory Bodies

State Regulation and Public Policy

In general, the German system of higher education is regulated at the level of the federal states. At the national level, the Framework Act for Higher Education, established in 1976, only defines a limited number of standards regarding the principal role and legal status of academic institutions as well as the admission of students. All other organizational issues of higher education are addressed by federal state acts or are left to the academic institution itself, following the idea of the so-called "autonomy principle". At the national level, there are, however, a number of initiatives by the Federal Ministry of Education and Research to support the competitiveness of the German academic system or to help individual institutions to handle issues such as absorbing a higher number of students, which followed from the shortening of high school education from 13 to 12 years (mentioned above). One example of such an initiative is the so-called "excellence initiative", which is organized in collaboration with the German Research Foundation. In its third tranche, launched in 2012, it provides a three-digit million amount of euros to 11 universities to allow them to realize their future concepts. In the field of economics and business administration, the University of Mannheim receives support to run an ambitious PhD program. At the level of individual federal states, the Bavarian state government has established an "elite network" that provides money to study programs with a special focus on highly talented students. In the field of economics and business administration, an honors program at the University of Regensburg and a program entitled "Finance and Information Management", offered in collaboration between the universities of Augsburg, Bayreuth, and Munich (Technical University), are supported by this network.

Note that the German Council of Science and Humanities (Wissenschaftsrat) provides advice to the German federal government and individual state governments on the structure and development of higher education and research. The above-mentioned German Research Foundation also plays an important role in providing recommendations regarding, for example, the organization of doctoral education.

Ranking and Accreditation

As in other countries, German-speaking countries also have a number of business and general-interest magazines such as *Capital*, *Spiegel*, or *Focus*, as well as newspapers such as *Die Zeit* and *Frankfurter AllgemeineZeitung*, that publish faculty and school rankings. In particular, the *Zeit* ranking, developed and executed in collaboration with the "Centrum fürHoch-schulentwicklung" (CHE), a non-profit private limited company founded by the Bertelsmann Foundation and the German Rectors' Conference in 1994, aims at supporting prospective students in their university or UAS choice. The methodology is highly disputed, however, leading institutions such as the Swiss and Austrian Rectors' Conference to withdraw from recommending participation in this ranking. The German Rectors' Conference as well as business faculties and schools in the German-speaking world have so far hesitated to follow this path.

Some academic institutions seem to have an ambition to be ranked in the *Financial Times* European Business School Ranking. In the 2014 edition, nine universities (St Gallen, Zurich, Cologne, and Vienna University of Economics and Business) and (mostly private) schools (Mannheim, ESMT, HHL Leipzig, WHU, EBS) found themselves among the top 80.¹² *The Economist* may also serve as an interesting outlet for ranking.

Even more disputed, at least within the academic community, than these faculty and school rankings are the professor rankings published by *Handelsblatt* on a biannual basis since 2009. These rankings are only based on research output published in academic journals, raising (apart from methodological issues) the question of what other professional skills—such as good teaching—may qualify for being a "good professor". The most recent editions of this ranking were boycotted by more than 300 colleagues, and the above-mentioned VHB, the German Academic Association for Business Research, published very reluctant statements regarding personalized rankings. At the same time, however, the VHB edits a journal ranking named JOURQUAL with the aim of supporting faculties regarding their research evaluations when hiring candidates

¹²See http://rankings.ft.com/businessschoolrankings/european-business-school-rankings-2014

(cf. Schrader and Hennig-Thurau 2009). The critical discussion during the preparation phase of the latest edition, published in 2015,¹³ was once again very intense.

The German accreditation system is organized under the umbrella of the Accreditation Council of the Foundation for the Accreditation of Study Programs in Germany and makes the distinction between the accreditation of study programs ("program accreditation") and the accreditation of internal quality assurance systems in higher education institutions ("system accreditation"). At the end of 2015, 35 (32) bachelor (master's) programs of business administration at the university level and 59 (17) programs at the UAS level have received an accreditation (http:// www.akkreditierungsrat.de/index.php?id=44&L=1). Interestingly, only seven university programs, but 24 UAS programs, have an international accreditation (FIBAA) (see http://www.hs-kompass2.de/kompass/xml/ akkr/maske_en.html), indicating how ambitious the UAS are and how difficult well-established universities may find it to collaborate, for example, with US universities.

Concluding Remarks

In sum, there is evidence that the German university system (as well as the university systems in Austria and Switzerland) and, more specifically, the way in which higher education in business administration is organized is in transition. The intensity of competition has increased enormously, due to the globalization of the higher education system in general and the recent development of UAS and private universities and/or business schools within Germany. In the nineteenth century, the German university system was admired around the world, and German engineering degrees—especially the diploma—still have a high reputation. As mentioned above, the number of foreign students studying in Germany is about twice as much as the number of German students studying abroad, which shows that the German university

¹³ http://vhbonline.org/en/service/jourqual/

system is relatively attractive, at least in terms of costs (no tuition fees at state-owned universities) versus benefits (education quality). Overall, however, the German system is often recognized as a laggard in its adaptation to the globalized environment (cf. e.g. Nelson 1993). From this perspective, it remains to be seen how long it will take until the leading German suppliers of business education are recognized as serious players in the top international league of those institutions.

At the same time, it should not be forgotten that the development of the global university system is also under sharp critique (cf. e.g. Crouch 2015) and that the recent developments within Germany are also highly debated (cf. e.g. Münch 2009, 2011). Indeed, there is so far no clear evidence regarding how efficient the national university systems are comparatively and how the performance of these systems should be measured. For example, it is not at all clear whether the higher performance of top US universities and business schoolsassuming for a moment that such higher performance indeed existsis not overcompensated by its higher cost. Further, the recent success of the German economy might also have been the result of an academic education that far exceeds its reputation. Finally, it is a neverending topic how important the focus on the top 10 % of students is in relation to the other 90 %. The German system of higher education in business administration today certainly has a much wider spread in terms of quality, as was the case in earlier times. In comparison to other countries, this spread may still be lower. Whether this is an advantage or a disadvantage remains an open question.

Appendix: State-Owned Universities with Business Administration Study Programs (also Included: Industrial Engineering with Focus on Management, Business Administration and Economics) (Status 2015)

Please note this list is not exhaustive.

Tvpe of University	Name	URL	Study program
Technical	Brandenburgische Technische Universität BTU Cottbus-Senftenberg	https://www.b-tu.de/	BSc Business Administration MSc Business Administration B.Eng. + BSc Business Administration and
Technical	Karlsruher Institut für	http://www.kit.edu/	Engineering M.Eng. + MSc Business Administration and Engineering BSc + MSc Industrial Engineering with focus on
Technical	Technologie RWTH Aachen	index.php https://www.rwth- aachoo do/cms/.ad	Management BSc Business Administration and Engineering: Elocatical Device Environment BSc
		aacrien.uev.cmx~ar root/lidx/1/	BSc Industrial Engineering DSc BSc Industrial Engineering, Civil Engineering Specialization BSc Industrial Envineering Materials and Process
			Engineering Specialization BSc Industrial Engineering, Mechanical Engineering Specialization
Technical	Technische Universität Bergakademie Freiberg	http://tu-freiberg.de/	BSc Industrial Engineering and Management MSc Industrial Engineering and Management BSc Business Administration MSc Business Administration Dioloma (Acctaradiuste studies) Business
Technical	Technische Universität Berlin	http://www.tu-berlin. de/	Administration Administration BSc Industrial Engineering and Management BSc Sustainable Management MSc Industrial Engineering
			Msc Innovation Management and Entrepreneurship

Type of University	Name	URL	Study program
Technical	Technische Universität Brauschwein	https://www. *********************************	BSc Industrial Engineering with focus on Civil
	blauiscilweig		Mechanical Engineering and
			MSc Industrial Engineering with focus on Civil
			Engineering, Electrical Engineering and
			Mechanical Engineering
Technical	Technische Universität	https://www.	BSc Industrial Engineering
	Chemnitz	tu-chemnitz.de/	BSc Business Administration and Engineering
			MSc Business Administration and Engineering
			MSc Industrial Engineering
Technical	Technische Universität	http://www.	BSc Business Administration
	Clausthal	tu-clausthal.de/	MSc Technical Business Administration
			BSc Industrial Engineering
			MSc Industrial Engineering
Technical	Technische Universität	http://www.	BSc/MSc Business Engineering—technical field of
	Darmstadt	tu-darmstadt.de/	studies Mechanical Engineering
			BSc/MSc Business Engineering—technical field of
			studies Electrical Engineering and Information
			Technology
			BSc/MSc Business Engineering—technical field of
			studies Civil Engineering
Technical	Technische Universität	http://www.	No relevant study programs
	Dortmund	tu-dortmund.de/uni/	in Business —Administration
		Uni/index.html	
Technical	Technische Universität	https://tu-dresden.de/	BSc Business and Economics
	Dresden		MSc Business Administration
			MSc Industrial Engineering
			Diploma of Industrial Engineering

Type of University	Name	URL	Study program
Technical	Technische Universität Hamburg-Harburg	http://www.tuhh.de/ tuhh/startseite.html	MSc Industrial Engineering Management MSc International Management and Engineering MBA
Technical	Technische Universität Ilmenau	https://www. tu-ilmenau.de/	BSc Industrial Engineering and Management
Technical	Technische Universität Kaiserslautern	https://www.uni-kl.de/ startseite/	MSc Business Administration BSc Technical Business Administration MSc Technical Business Administration
			BSc Industrial Engineering with varying technical specializations MSc Industrial Engineering with varying technical specializations
Technical	Technische Universität München	https://www.tum.de/	BSC Business Administration Management and Technology MSc Business Administration Management and Technology MSc Business Administration Management
Traditional	Albert-Ludwigs-Universität Freiburg	https://www.uni- freiburg.de/	Most Industrial Engineering BA Business Administration BSc Business Administration (Public and Non- Profit Management) MSc Business Administration (Public and Non-Profit Management)
Traditional	Bergische Universität Wuppertal	http://www.fbe. uni-wuppertal.de/ fbe/studiengaenge/ wiing.html	BSc Business Administration and Electrical Engineering MSc Business Administration and Electrical Engineering

Trina of I Inivarcity	Name	IBI	Ctudy program
Traditional	Christian-Albrechts- Universität zu Kiel	http://www.uni-kiel. de/	BSc/MSc Business Administration BSc/MSc Business Science
Traditional	Europa Universität Viadrina Frankfurt (Oder)	https://www.europa- uni.de/de/index.html	BSC International Business Administration BSC Economy and Law MSC International Business Administration MAC International Business Administration
Traditional	Fernuniversität Hagen	https://www.fernuni- hagen de/	MA Educered Science BSc Business Science MSc Business Science
Traditional	Freie Universität Berlin	http://www.fu-berlin. de/	BSc Business Administration MSc Management and Marketing
Traditional	Friedrich-Alexander- Universität Erlangen-Nürnberg	http://www.wing. uni-erlangen.de/	BSc Business Administration BSc Business Administration BSc International Business Studies BSc International Production Engineering and Management
Traditional	Heinrich-Heine-Universität Düsseldorf	http://www.uni- duesseldorf.de/ home/ctarteeite html	MBA Business Management BSc Business Administration MSc Business Administration
Traditional	Humboldt Universität Berlin	https://www. hu-berlin.de/de	BSc Business Administration MSc Business Administration MSc Economics and Manadament Science
Traditional	JW. Goethe-Universität Frankfurt	http://www.uni- frankfurt.de/ de2locale=de	MSc Business Administration
Traditional	Justus-Liebig-Universität Gießen	https://www.uni- giessen.de/	BSc Business Science MSc Business Administration

Type of University	Name	URL	Study program
Traditional	Katholische Universität Eichstätt-Ingolstadt	http://www. ku-eichstaett.de/	BSc Business Administration BSc International Business Administration (German—Chinese) BSc Business Science MSc Business Administration
Traditional	Leibniz Universität Hannover	http://www.uni- hannover.de/	BSc/MSc Business Science BSc/MSc Industrial Engineering
Traditional	Leuphana Universität Lüneburg	http://www.leuphana. de/	BA Business Administration BSc Business Management BSc International Business Administration and
			Entrepreneurship MA Management MSc Management and Engineering
Traditional	LMU Ludwig-Maximilians- Universität München	http://www.uni- muenchen.de/index. html	BSc Business Administration BSc Business Science MSc Business Administration
Traditional	Universität Augsburg	https://www.uni- augsburg.de/	BSc Business Administration BSc Industrial Engineering MSc Business Administration MSc Industrial Engineering
Traditional	Universität Bamberg	https://www.uni- bamberg.de/	BA Business Administration MA Business Administration BA/MA International Business Administration
Traditional	Universität Bayreuth	https://www.uni- bayreuth.de/de/ index.html	BSc Business Administration BSc Industrial Engineering MSc Business Administration MSc Industrial Engineering

Two of University	Name	IBI	Study program
Traditional	Universität Bremen	http://www.uni- bremen.de/	BSC Business Studies MSc Business Studies SSC Management and Electrical Engineering MSc Management and Electrical Engineering BSc Management and Production Engineering MSc Encineering and Management
Traditional	Universität der Bundeswehr Hamburg (Helmut Schmidt- Universität Hambura)	http://www.hsu-hh. de/hsu/index.php	BSc/MSc Industrial Engineering
Traditional	Universität der BundeswehrMünchen	https://www.unibw. de/	MBA International Management B.Eng. Industrial Engineering BSc/MSc Business Administration, Economics and Organization
Traditional	Universität des Saarlandes	http://www.uni- saarland.de/ startseite.html	BSc Business Administration MSc Business Administration
Traditional	Universität Duisburg-Essen	https://www.uni-due. de/	BSc Business Administration MSc Business Administration BSc/MSc Industrial Engineering
Traditional	Universität Erfurt	https://www.uni- erfurt.de/	BA Management
Traditional	Universität Göttingen	http://www.uni- goettingen.de/	BSc Business Administration MSc Business Administration BSc/MSc Business Science
Traditional	Universität Greifswald	http://uni-greifswald. de/	Diploma Study of Business Administration BA Law, Business Administration, Human Resource Management
Traditional	Universität Halle-Wittenberg	http://www.uni-halle. de/	BSc/MSc Business Administration BSc Business Science

Type of University	Name	URL	Study program
Traditional	Universität Hamburg	https://www.uni- hamburg.de/	BSc/MSc Business Administration BSc/MSc Industrial Engineering
Traditional	Universität Hohenheim	https://www.uni- hohenheim.de/	BSc Business Administration and Economics BSc Business Science MSc International Business and Economics
Traditional	Universität Jena	https://www.uni-jena. de/	Misc Management BSc Business Administration MSc Business Administration BSc Rusiness Science
Traditional	Universität Kassel	http://www.uni- kassel.de/uni/	BSc/MSc Industrial Engineering BA Business Administration and Economics
Traditional	Universität Leipzig	http://www.zv. uni-leipzia.de/	MSc Business Administration BSc/MSc Business Science
Traditional	Universität Magdeburg	https://www.ovgu.de/	BSc /MSc Business Administration BSc International Business and Economics BSc International Management BSc/MSc Industrial Engineering
Traditional	Universität Mannheim	http://www.uni- mannheim.de/1/	MSc Management MSc Management MBA
Traditional	Universität Marburg	http://www.uni- marbura.de/	BSc/MSc Business Administration
Traditional	Universität Münster	https://www.uni- muenster.de/de/	BSc/MSc Business Administration
Traditional	Universität Oldenburg	https://www.uni- oldenburg.de/	BA Business Administration MA Innovation Management MA Business Science
Traditional	Universität Osnabrück	http://www.uni- osnabrueck.de/ startseite html	BSc/MSc Business Administration BSc Business Science

Type of University	Name	URL	Study program
Traditional	Universität Paderborn	http://www.uni-	BSc Business Science
		paderborn.de/	BSc/MSc International Business Studies
T			PC- Duringer Administration and Freedomin
Iraditional	UIIIVEISILAL FASSAU	ntup.//www.uni- passau.de/	Bac business Administration MSc Business Administration
Traditional	Universität Potsdam	http://www.uni-	BSc/MSc Business Administration
		potsdam.de/	MBA
Traditional	Universität Regensburg	http://www.uni-	BSc/MSc Business Administration
		regensburg.de/	
Traditional	Universität Rostock	http://www.uni-	BSc Business Science
		rostock.de/	BSc/MSc Industrial Engineering
Traditional	Universität Siegen	https://www.uni-	MSc Industrial Engineering
		siegen.de/start/	BSc Business Administration
			MSc Management and Markets
			MSc Entrepreneurship and SME Management
			MSc Controlling and Risk Management
			MSc Accounting, Auditing and Taxation
Traditional	Universität Stuttgart	http://www.uni-	BSc/MSc Technical Business Administration
		stuttgart.de/home/	MSc Business Administration
Traditional	Universität Trier	https://www.uni-trier.	BSc/MSc Business Administration
		de/index.php?id=48	
Traditional	Universität Tübingen	https://www.uni-	BSc Economics and Business Administration
		tuebingen.de/	MSc General Management
			MSc International Business
Traditional	Universität Würzburg	https://www.uni-	BSc Business Science
		wuerzburg.de/	MSc Business Management
		startseite/	
Traditional	Universität zu Köln	http://www.uni-koeln.	BSc Business Administration
		de/	MSc Business Administration
			MSc International Management

Bibliography

- Baumgarten, H., Hildebrand, W.-C., Hirschhausen, C. V., & Schmager, B. (Eds.). (2015). Wirtschaftsingenieurwesen in Ausbildung und Praxis. Berlin: Universitätsverlag.
- Brynjolffson, E., & McAfee, A. (2014). The second machine age: Work, progress, and prosperity in a time of brilliant technologies. New York: W.W. Norton & Co..
- Büsch, J. G. (1792). Theoretisch-praktische Darstellung der Handlung in deren mannigfaltigen Geschäften. Hamburg: Hoffmann.
- Burr, W. (2011). Zur Geschichte der deutschsprachigen Betriebswirtschaftslehre.
 In W. Burr & A. Wagenhofer (Eds.), *Geschichte des VHB und Geschichten zum VHB* (pp. 121–138). Wiesbaden: Gabler.
- Crouch, C. (2015). *The knowledge corrupters. Hidden consequences of the financial takeover of public life.* Cambridge: Polity Press.
- Gutenberg, E. (1951). Grundlagen der Betriebswirtschaftslehre. Band 1: Die Produktion. Berlin/Heidelberg: Springer.
- Gutenberg, E. (1955). *Grundlagen der Betriebswirtschaftslehre, Vol. 2, Der Absatz.* Berlin/Heidelberg: Springer.
- Gutenberg, E. (1969). Grundlagen der Betriebswirtschaftslehre, Vol. 3, Finanzierung. Berlin/Heidelberg: Springer.
- Hanssmann, F. (1982). *Quantitative Betriebswirtschaftslehre*. Oldenbourg: Munich & Vienna.
- Heinen, E. (1984). Betriebswirtschaftliche Führungslehre. Wiesbaden: Gabler.
- Jackson, T. (2009). *Prosperity without growth: Economics for a finite planet*. London/New York: Earthscan/Routledge.
- Johns, R. (1938). Die Vollrechnung der Gemeinden. Zeitschrift für handelswissenschaftliche Forschung, 32, 145–176 and 193–199.
- Kieser, A., & Kubicek, H. (1977). Organisation. Berlin: de Gruyter.
- Kirsch, W. (1970/1971). Entscheidungsprozesse (3 volumes) Wiesbaden: Gabler.
- Kosiol, E. (1962). Organisation der Unternehmung. Wiesbaden: Springer.
- Laux, H., & Liermann, F. (1987). *Grundlagen der Organisation*. Berlin/ Heidelberg: Springer.
- Ludovici, C. G. (1752–1756). Eröffnete Akademie der Kaufleute, oder vollständiges Kaufmanns-Lexikon. Leipzig: Breitkopf.
- Luther, M. (1524). Von Kauffshandlung und Wucher. Vuittemberg: Lufft.
- Marperger, P. J. (1717). Beschreibung der Banquen, was und wievielerbey dieselben seyn, als nehmlich Land-, Lehn-, Deposito-Wechsel & [et] Giro oder

Kauffmännische Ab- & Zuschreib- wie auch Billets- oder sogenannte Müntz-Zettels- und ActienBanquen. Halle/Leipzig: Serre.

Meffert, H. (1977). Marketing. Wiesbaden: Gabler.

- Middendorff, E., Apolinarski, B., Poskowsky, J., Kandulla, M., & Netz, N. (2013). Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2012. 20. Sozialerhebung des Deutschen Studentenwerks. Available at: https://www.studentenwerke.de/sites/default/files/01_20-SE-Hauptbericht. pdf. Accessed on 4 Jan 2016.
- Müller-Christ, G. (2010). Nachhaltiges Management Eine Einführung in Ressourcenorientierung und widersprüchliche Managementrationalitäten. UTB: Baden.
- Mugler, J. (1998). Die Wiener Schule der Betriebswirtschaftslehre. Journal für Betriebswirtschaft/Management Review Quarterly, 48, 45–87.
- Münch, R. (2009). Globale Eliten, lokale Autoritäten. Bildung und Wissenschaft unter dem Regime von PISA. Frankfurt a.M: McKinsey & Co/Suhrkamp.
- Münch, R. (2011). Akademischer Kapitalismus. Zur Politischen Ökonomie der Hochschulreform. Berlin: Suhrkamp.
- Nelson, R. (1993). *National innovation systems: A comparative analysis*. New York/ Oxford: Oxford University Press.
- Nordsieck, F. (1934). Grundlagen der Organisationslehre. Stuttgart: Poeschel.
- Schomburg, H. (2011). Bachelor graduates in Germany: Internationally mobile, smooth transition and professional success. In H. Schomburg & U. Teichler (Eds.), *Employability and mobility of bachelor graduates in Europe.key results of the Bologna process* (pp. 89–110). Rotterdam: Sense Publishers.
- Schneider, D. (1997). Geschichte der Betriebswirtschaftslehre. Wirtschaftswissenschaftliches Studium (WiSt), 10, 490–500.
- Schrader, U., & Hennig-Thurau, T. (2009). VHB-JOURQUAL2: Method, results, and implications of the German Academic Association for business research's journal ranking. *BuR—Business Research*, 2(2), 180–204.
- Statistisches Bundesamt. (2015a). Bildung und Kultur: Studierende an Hochschulen, Special series 11, Series 4.1. Wiesbaden. Available at: https:// www.destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/ Hochschulen/StudierendeHochschulenEndg2110410157004.pdf?__ blob=publicationFile. Download on 17/11/2015.
- Statistisches Bundesamt. (2015b). Deutsche Studierende im Ausland. Statistischer Überblick 2003–2013, Wiesbaden. Available at: https://www. destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/ Hochschulen/StudierendeAusland5217101157004.pdf?__ blob=publicationFile. Accessed on 2 Mar 2016.

- Staufenbiel. (2014). Wirtschaftswissenschaftler: Gute Einstiegsgehälter. https:// www.staufenbiel.de/wirtschaftswissenschaftler/gehalt/guteeinstiegsgehaelter.html. Accessed on 4 Jan 2016.
- Ulrich, H. (1968). *Die Unternehmung als produktives soziales System*. Bern/ Stuttgart: Haupt.
- Walb, E. (1926). Die Erfolgsrechnung privater und öffentlicher Betriebe: Eine Grundlegung. Berlin: Spaeth & Linde.
- Witte, E. (1968). Phasen-Theorem und Organisation komplexer Entscheidungsverläufe. Zeitschrift für betriebswirtschaftliche Forschung, 20, 625–647.
- Witte, E. (1973). Organisation für Innovationsentscheidungen. Das Promotoren-Modell. Göttingen: Schwartz.
- Witte, E. (1998). Entwicklungslinien der Betriebswirtschaftslehre: Was hat Bestand? *Die Betriebswirtschaft, 58*, 731–746.
- Zahn, E. (1972). *Systemforschung in der Bundesrepublik Deutschland*. Göttingen: Vandenhoeck & Ruprecht.