

**Position Paper
of the
Academic Association of Sales Engineering (AASE)**



Aschaffenburg, 2 June 2015

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I. History of the AASE

In the year 2013, the complete soon-to-be executive committee of the AASE met for the first time.

The occasion was a sales conference at the HS Aschaffenburg, organized by the future president of the AASE, Ludger Schneider-Störmann, course of study "Internationales Technisches Vertriebsmanagement." On an initiative of Luis Barrantes, coordinator of the course of study "Sales Engineering and Product Management" at the Ruhr-University of Bochum, the founding of an association of Sales Engineering Higher-Education Institutions was discussed, or rather their academic representatives. All participating higher-education institution representatives agreed on an association. In the course of the discussion, the possible objectives of the association to be established were immediately predefined, among other things:

- ⌘ Establishing a contact with other colleges/industries/associations
- ⌘ Harmonization of the curricula of the institutions of higher education
- ⌘ Cooperation among the institutions of higher education
- ⌘ Establishing the term "Sales Engineer" as a brand
- ⌘ Learning from others
- ⌘ Improving the teaching

- ⌘ Research program
- ⌘ Further development of the "Sales Engineer's" job profile
- ⌘ Professionalization
- ⌘ Strengthening of the sense of camaraderie of Sales Engineers
- ⌘ Improvement of the "Sales Engineer's" status
- ⌘ Broadening research
- ⌘ Public and press relations

The benefit of a new, globally unique association became immediately apparent to each and every participant. The participants agreed to establish this association in 2014.

The Ruhr-University of Bochum conducted a detailed study on the landscape of German institutions of higher education in order to record all the Industrial Sales Engineering courses of study, so all the potential partners could get on board.

The institutions of higher education studied were jointly contacted, in written or oral form, by the circle of participants of the preliminary meeting in 2013. In the same way, other institutions of higher education in Austria were approached by Roman Anlanger, Dean of the Bachelor course of study in "Technischer Vertrieb" at the FH des BFI Vienna.

2. Objective of the AASE

With their signatures, the 27 representatives of the 14 participating institutions of higher education in Sales Engineering established the Academic Association of Sales Engineering (AASE) on 4 June 2014.

The focus lay on education in technical sales; therefore, the invitation to the founding meeting was sent solely to this circle of persons so that the AASE dissociated itself deliberately from a pure marketing-oriented course of study in sales.

The benefits to each individual member of the AASE can be summarized as follows:

- ⌘ Consistent improvement of the education through exchange
- ⌘ Variety of the development through the experience of other lecturers
- ⌘ International diffusion and acknowledgment of the job profile
- ⌘ Joined-up thinking and global trading conforming to the modern Zeitgeist
- ⌘ Access to research programs

Fig. 1 shows the distribution of the origin of the AASE Institutions of Higher Education. Besides locations in Germany, AASE Institutions of Higher Education are also represented in France, Finland (became an AASE member after the founding), and Austria.

To the best of our knowledge, we have included here 100% of all the higher-education institutions that offer a course of study in Sales Engineering.

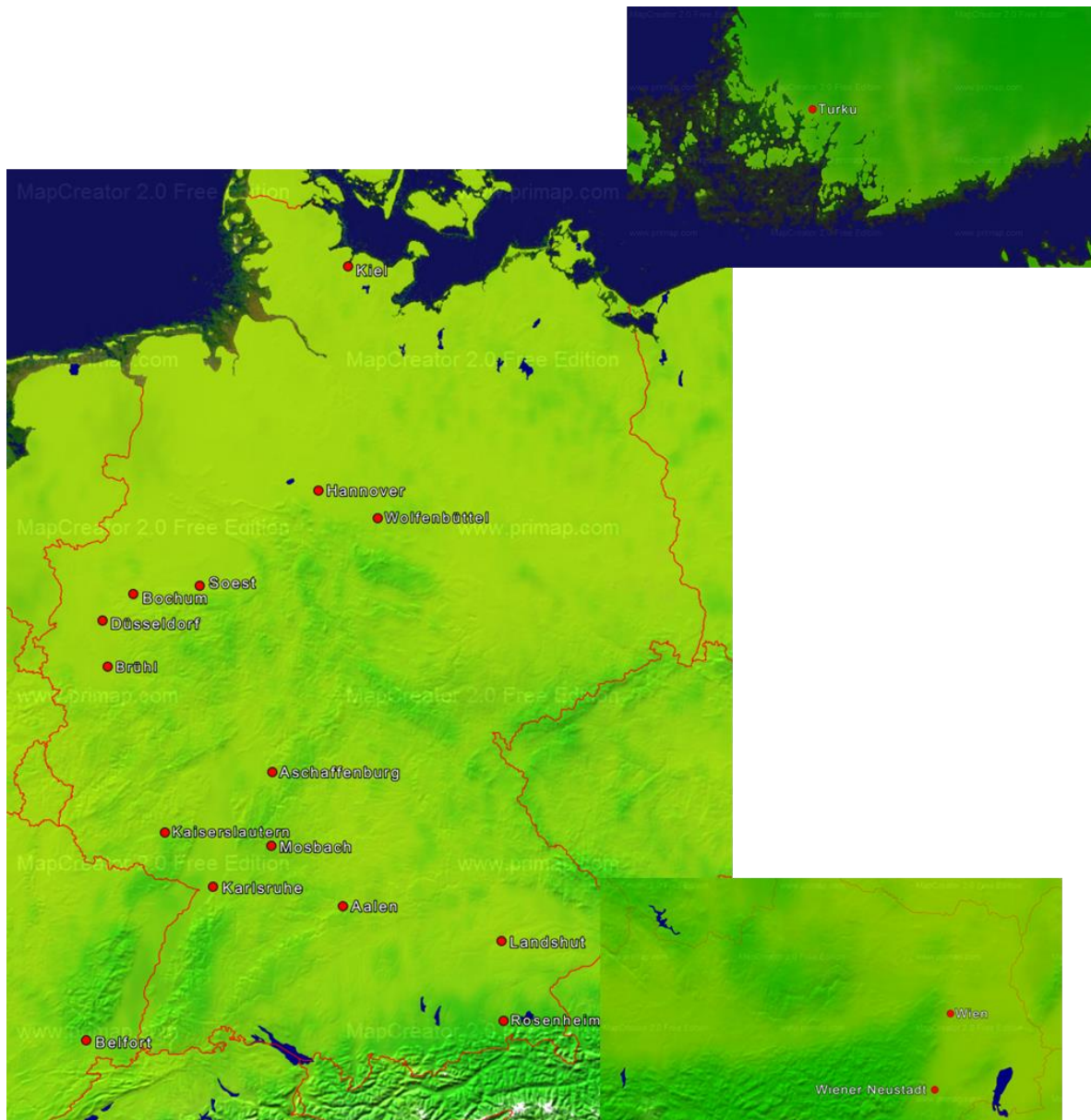


Fig. 1: Locations of the Sales Engineering Institutions of Higher Education in DEU, FIN, FRA, and AUT.

During the founding meeting on 4 June 2014, the following three core objectives were defined; objectives that are to be achieved strategically as well as operatively through the AASE:

⌘ Public Relations

⌘ Teaching

⌘ Research

Three corresponding working groups were immediately appointed. By the end of the first half-year from the founding of the AASE, they had already begun their work; the first results are at hand.

3. Organizational Form and Members of the AASE

At present, 33 professors and lecturers from four countries of the European Union are brought together in the AASE. The membership is a personal one, whereby the respective colleges and universities support the association. A statute is at hand. The founding of the AASE as a registered association will take place at the third annual meeting of the AASE 2016.

As criterion for membership, it was asserted that permanent members of the teaching staff of academic institutions exclusively are admitted. As second criterion, the lecturers must be integrated into the education of Sales Engineers, thus in Engineering Science courses of study. The reason behind this is that, with the harmonization of the curricula in mind, all topics should be covered; furthermore, members are also capable of integrating their expertise into education, which is a requirement for an outstanding quality of teaching.

The AASE consists of a committee and three working groups: Research, Teaching, and Public Relations. Each working group has a chairperson, who is a member of the expanded AASE committee (see Fig. 2).

The AASE meets annually at varying locations. In addition to organizational aspects, the meetings also deal with the results of the working groups, as well as specialist presentations from the research field of Sales Engineering. Further meetings of the working groups have been announced for October 2015 in Karlsruhe. The next AASE annual meeting will take place in Brühl on 26 April 2016.

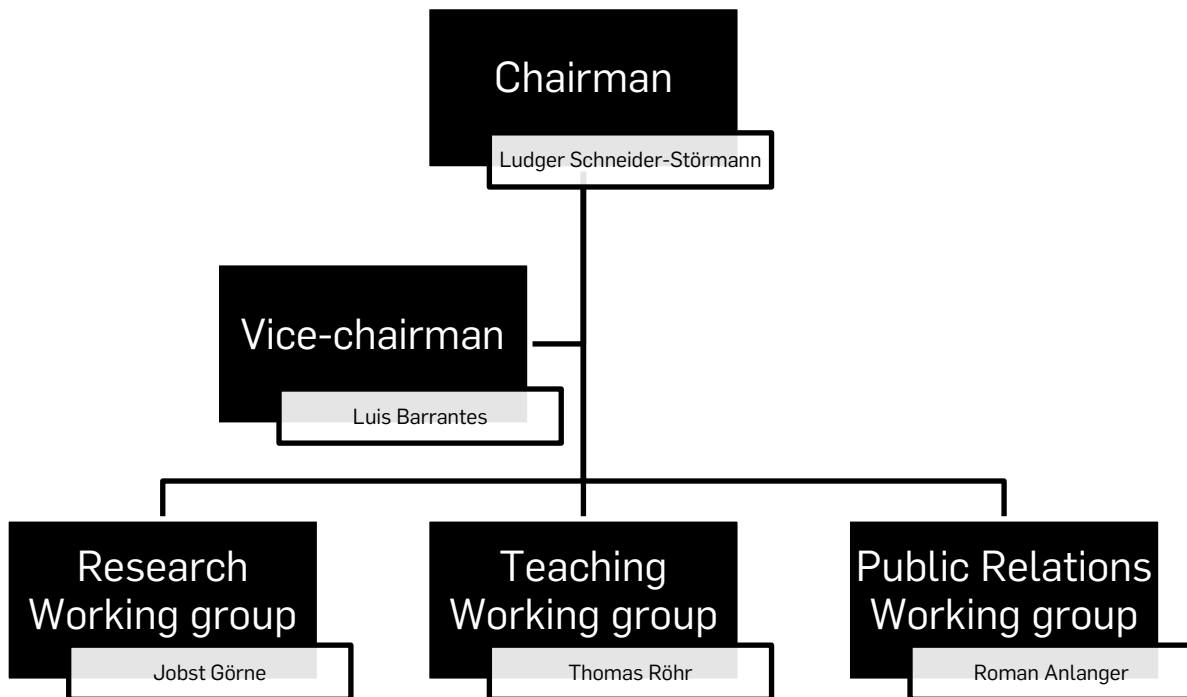


Fig. 2: Organigram of the AASE

3.1 Research Working Group

The Research Working Group consists of eight members (as of June 2015) and already met, as all the other working groups, twice in 2014: on the day of founding and on 30 October 2014 at the HTW Aalen. This is where a consortium project was conceived, the content of which will be further developed in 2015.

3.2 Teaching Working Group

The harmonization of the academic education of Sales Engineers was the topic of the second meeting of the Teaching Working Group at the FH Düsseldorf on 18 November 2014. The Teaching Working Group has eleven members (as of June 2015).

3.3 Public Relations Working Group

At the autumnal retreat of the Public Relations Working Group of the AASE, which has eight members as of June 2015, the cooperation with the Association of German Engineers (VDI), described below, was discussed among other things.

3.4 The Student AASE

In October 2014, a student syndicate associated with the AASE was also founded on an initiative of the students of the Ruhr-University of Bochum and the HS Aschaffenburg. This syndicate also meets once a year and operates, to the greatest extent, independently from the

AASE committee. However, an exchange of the results and objectives of both associations takes place at an operational level in course of the annual AASE general assembly.

4. Research in the AASE

Sales Engineers sell products and services, which are extremely sophisticated technically and require consultation, to industrial customers. They cover, therefore, a substantially vaster range of duties in their daily work than salespersons who sell to end users. In this respect, many of the developed consumer-marketing procedures, approaches, and regularities are not employable in technical sales, or only to a limited extent.

From the perspective of the AASE, it is necessary to professionalize this very important economic segment of technical sales further through research activities in the field of technical sales. The AASE Research Working Group has stipulated scientific focal points, the research of which is essential for the understanding of the demands on Sales Engineers. Through fundamental and applied research, these focal points are to drive the understanding of business processes in technical sales and of the success criteria of Sales Engineers further.

In order to show research results in concrete and practically feasible approaches, the studies must be sector specific. The processes in technical sales are strongly dependent on their respective industrial sector, because the economic significance, the technical and commercial risk, as well as the kind of product and the kind of supplier-customer relationship highly depend on the sector. It is sensible to determine a prioritization of the sectors according to their significance in German economic landscape.

The AASE recommends studying the following industrial sectors as a first step:

- ⌘ Automotive industry with its supply chain
- ⌘ Electrical industry
- ⌘ Mechanical Engineering
- ⌘ Chemical industry
- ⌘ Optical industry

The technical sales in the above-mentioned sectors constitute approx. 60% of Germany's exports and over 20% of the gross national product. A scientific study on these sectors would, therefore, be of great impact on the aforementioned aspects.

The research topics in these sectors are the following:

- ⌘ Future-oriented sales strategies and systems
- ⌘ Management and leadership

- ⌘ Digitalization, automatization und virtualization, information management
- ⌘ Modeling of the sales and operational processes.

In order to structure and combine the research efforts, the AASE suggests defining the knowledge structures that offer an overview of the areas to research, on the basis of which young researchers can orient themselves and integrate their findings quickly and easily. These structures are still to be developed.

The Research Working Group has identified the research topics (listed in Fig. 3), which are to be addressed in line with the Federal Ministry of Education and Research (BMBF) and the Federal Ministry for Economic Affairs and Energy (BMWi) future tenders on the theme of Industry 4.0.

The research results achieved are to be made available to the largest possible circle of interested persons. The AASE is striving to provide the publication of research results to the researchers, lecturers, and users interested, in most cases, free of charge. In addition to that, an internet-based database is to be created, in which the desired information can be found quickly on the basis of the previously stated knowledge structure as well as with the help of a keyword search.

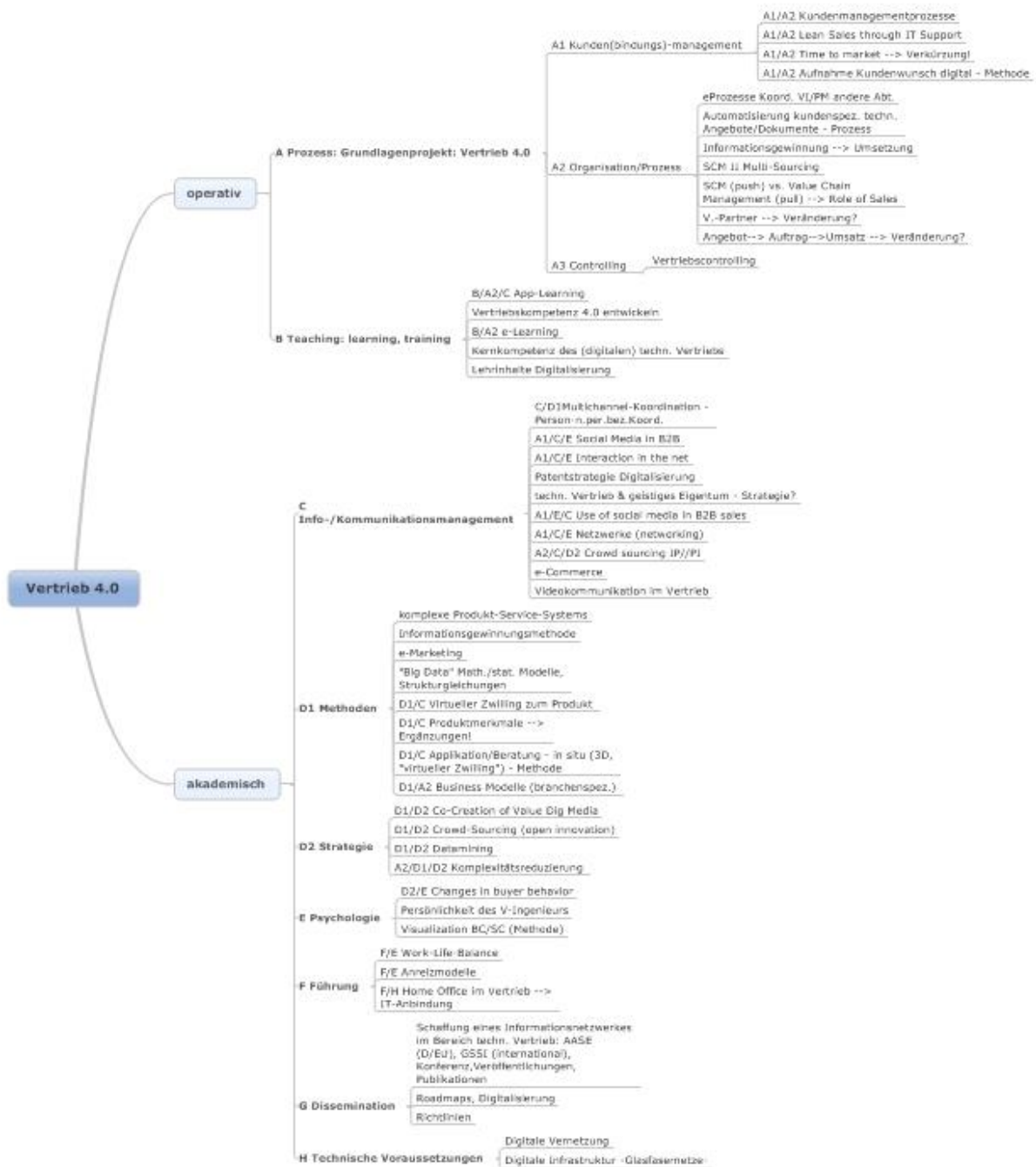


Fig. 3: Sales Engineering research topics in line with the Industry 4.0 tenders.

Furthermore, Turku UAS Ltd, ESTA Belfort, HTW Aalen, and Ruhr-University Bochum along with other partners from Poland and Italy have filed a research application in the field of knowledge alliances in the current Erasmus+ Call for Proposals. The proposal for the project named "Boosting European COmpetitiveness by introducing professional Sales Engineering education / BECOSE" was to be submitted by the end of February 2015, therefore, a meeting for the completion and optimization of the draft had been scheduled for 4-5 February 2015 (see Fig. 4).

EU Program	Erasmus+
Action	Key Action 2: Cooperation For Innovation and the Exchange of Good Practices
Project type	Knowledge Alliances
Minimum n° of countries	3
Minimum n° of partners	6 (at least 2 higher education organizations and 2 companies)
Likely n° of partners	10-12
Project duration	24 or 36 months
Grant allocation (in €)	Maximum EU contribution is 700 000 eur (2 years), 1 000 000 eur (3 years)
Application deadline	26 th of February
Application results date	August 2015
Starting date	November 2015

Fig. 4: Basic information of the research project in the Call for Papers of the Erasmus EU-Program

5. Education of Sales Engineers in the AASE Institutions of Higher Education

5.1 Development of the education of Sales Engineers in Germany and Europe

In an estimate of the Association of German Engineers (VDI) it was determined that the Sales Engineers working in German at the moment are about 100,000¹. Assuming that the average working period is 40 years, 2,500 Sales Engineers retire every year. As a result, the yearly recruitment needs of the German industry is 2,500 Sales Engineers. This demand is covered, in most cases, by engineers, who sell company products, without having received, however, a well-founded education in sales. "Learning by doing" is often the approach here, by means of which the prospects of successfully concluding a contract, however, decrease.

Education in engineering sciences as well as economics has a long tradition; Sales Engineers with a combined technical and sales-related education have only been trained in German institutions of higher education for approximately 15 years. Despite an increase in offers of courses of study in Industrial Sales Engineering, there still are not enough graduates being trained for the labor market by the institutions of higher education concerned. The demand still exceeds the offer many times over.

¹ <https://www.vdi.de/technik/fachthemen/produkt-und-prozessgestaltung/artikel/kontinuitaet-und-kompetenz-in-der-weiterbildung-von-vertriebsingenieuren/>, last visited on 30.5.2015

Today, interested high school graduates can choose among offers in about 20 universities, colleges, vocational academies, dual-mode colleges, and online universities. Fig. 5 shows the trend of the offers of Sales Engineering courses of study (bachelor and master) at AASE Institutions of Higher Education.

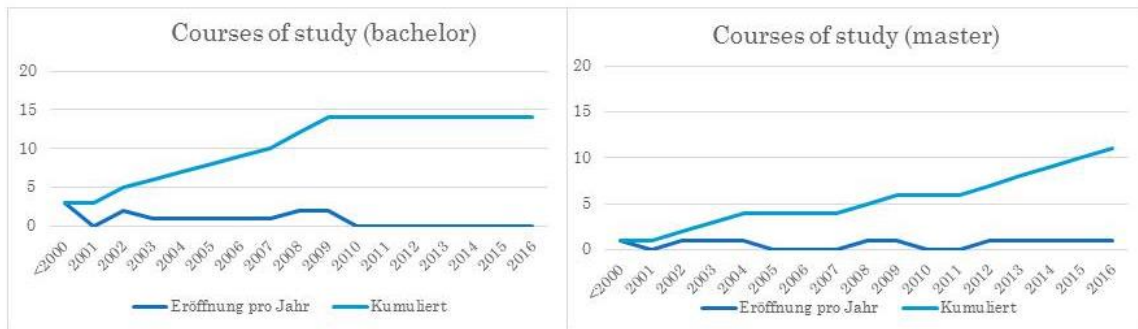


Fig. 5: Trends of the offer of bachelor and master courses of study in Sales Engineering at AASE Institutions of Higher Education.

The various offers of study were, in most cases, initiated in a local context or through the commitment of a few professors. As a result, the courses of studies have, in each case, different

- ⌘ curricula,
- ⌘ directives,
- ⌘ focal points,
- ⌘ standard study periods,
- ⌘ practicum specifications.

A unified standard does not exist. In particular, a glance at the technical/sales-related parts shows two kinds of education:

- ⌘ Where a Sales Engineering study was established in a technical institution, synergies in the engineering sector are generally used. Future Sales Engineers also obtain, therefore, a strong discipline-specific education, for example mechanical or electrical or information technology engineering. Other engineering sectors are taught either marginally or not at all. Their future operational area will be, therefore, predetermined by the specialization of their studies.
- ⌘ The second option lies in a broader, and thus less discipline specific, engineering education. It is found mostly where an independent study course of technical sales was established at an engineering science faculty. Students

learn the basics of various engineering sectors, for example mechanical engineering and electronic engineering and other engineering fields. This variant leads to a generalist of technical sales, versatily deployable, but with a lower level of specialization, compared to the first kind of education.

There seems to be demand for both kinds of Sales Engineering education, for the training institutions of higher education can refer to distinctly good recruitment quota of the trained Sales Engineers, despite the critical economic situation. This phenomenon also suggests that the educational contents and the competence imparted seem to match the real demands of industries. There are, however, no well-founded studies either on the necessary competence and practical/theoretical knowledge of a Sales Engineer alone or on the reaccreditation of the courses of study. However, one could gather some information regarding the education required from the reaccreditation committee and, if present, from the appointed advisory boards.

In contrast to Germany, with its approximately 30 bachelor and master courses of study, the combined technical/sales-related education for Sales Engineering in the remaining European countries is distinctively less pronounced. In the course of the founding of the AASE, two institutions of higher education in Austria, one in France, and one more in Finland were identified and enlisted. This research in Europe is ongoing. The significance of "Sales Engineers" is as great as the awareness of those responsible for new courses of study seems scant. The VDI had already taken notice of this in the nineties. The continuous demands to establish courses of study led to courses of study in Germany known today and organized by the AASE.

This shows that the education of Sales Engineering is currently establishing itself. Here, it is important to set the quality criteria from the beginning, in order to give this young discipline the right direction.

5.2 Requirements concerning a Sales Engineering Curriculum

Sales Engineers work in the interface between the customer and their enterprise. They must, therefore, be capable of explaining to the customer a technical and often complex product, imparting its advantages, as opposed to competitors' products, or suggesting alternative solutions in order to conclude a contract. However, they must also analyze the customer's processes and be able to offer, where applicable, a technical or economical solution or rather create a product against a technical/sales-related backdrop in the first place.

Consequently, Sales Engineers have a well-founded technical knowledge at their disposal, allowing them to understand and to analyze technical processes and functionalities as well as to define and to argue for optimal products.

Technical knowledge alone is not however enough: The primary task of Sales Engineers is to sell their product successfully. Only when Sales Engineers can successfully achieve new financial contracts will their enterprise be able to survive the competition. Sales techniques,

negotiating skills, marketing knowledge as well as economic fundamentals and managerial responsibilities are hence also indispensable.

Another pillar of Sales Engineers displaying their abilities is the ability to adapt to various situations and to build a relationship with their customers based on trust. This is possible only when charisma, responsibility, adaptability, empathy, or decision-making capabilities are present. Person-orientation is here sought after, and not the object-orientation of typical engineers. Good language knowledge in written and spoken form as well as expression is, however, essential at least in one's own mother tongue and English. Staying many months abroad in a company or partner institution of higher education should, therefore, be made possible in any Sales Engineering curriculum.

A Sales Engineering curriculum is therefore represented by a combination of ability and competence in the following fields, shown in Fig. 6:

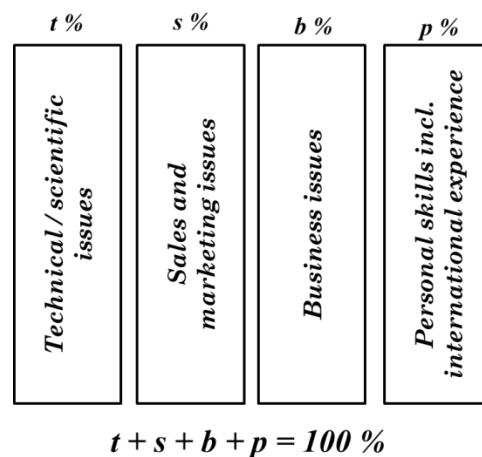


Fig. 6: General Structure of the Sales Engineering Curriculum

Sales Engineers can, thanks to their technical and sales-related education, adapt their way of thinking and acting to the respective environment, and thus sell their technical product or service successfully to their customers.

Here also lies the substantial difference from industrial engineering, provided the course of study does not present any Sales Engineering oriented specialization. Typically, industrial engineering study courses are geared more towards economic issues and management tasks, but do not impart the (practical) aspect of the sales process.

5.3 Goals and Cooperation of the AASE Members in the Field of Teaching

The goal of the members of the AASE is to harmonize the Sales Engineering education, in order to guarantee that the burgeoning offers of the courses meet the demands of the industry. Only in this way can people be equipped with the necessary knowledge and necessary competence, so that they can fulfill the demands made and market their employer's technical products or services successfully.

The first discussions focused especially on the question concerning the content-related and technical minimum requirements. The Teaching Working Group is unanimously of the opinion that such requirements must be fulfilled so that an education may be labeled as that of a Sales Engineer. The general structure of the Sales Engineering curricula is supported by the four pillars represented in Fig. 6. Reflections on the minimum requirements have just started, although determining of the minimum proportions of these four pillars could be a first attempt at harmonizing the courses of study. In this case, the sum of the minimum proportions should be considerably less than 100%, allowing the training institutions to have enough leeway to be able to adapt the study plan to local realities or, for example, to be able to react to special national certification requirements.

These minimum requirements will contribute to the reflections on the quality label. Upon request, this label is awarded by the AASE to the institutions, whose study plan meets the requirements. The quality label is to be spread at least across Europe. Owing to the necessary preliminary work, this step will, however, be implemented in the medium term.

The Teaching Working Group is working at the moment for an "AASE Sales Engineering Education Roadmap," which seizes on the objectives described in this chapter and that are to be connected with concrete actions and measures, cf. Fig. 7.

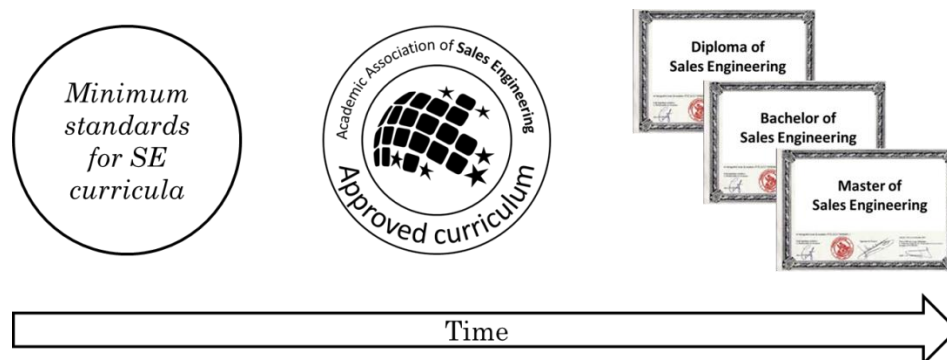


Fig. 7: The Three Phases of the "AASE Sales Engineering Education Roadmap"

The first step toward working on the first point is a joint research proposal of various AASE members in the course of the current Erasmus+ call for projects. The main objectives of this project are to determine the demands and the necessary competence of Sales Engineers by means of great Europe-wide survey as well as to derive the minimum requirements on the basis of the feedback from experience. These results will contribute decisively to the coordination of the offers of the Sales Engineering curricula with the actual demands of the European industry.

The cooperation among the members in the field of teaching essentially builds on the following three pillars:

- ⌘ Joint discussions in the context of the Teaching Working Group,

- ⌘ Joint teaching events or projects among different members or teaching events at partner institutions of higher education,
- ⌘ Simplification and strengthening of student exchange between partner institutions of higher education, especially through the harmonization and mutual recognition of the study plans.

6. Cooperation with Other Associations

The AASE endeavors to cooperate with other professional and trade associations.

A long-standing partnership continues to exist with the VDI through the committee of the AASE:

Prof. Dr.-Ing. Ludger Schneider-Störmann: member of the VDI-GPP FA208 Product Management panel of experts, member of the VDI-GPP FB2 Technical Sales and Product Management advisory panel.

Dr. Luis Barrantes: member of the VDI-GPP FA206 Formation of Sales Engineers panel of experts, member of the VDI-GPP FA201 Strategic Sales panel of experts, member of the VDI-GPP FB2 Technical Sales and Product Management advisory panel.

In these committees, the members of the AASE help form the guidelines with regard to its scientific nature as well as its practical orientation. Extending the share of the AASE members in the panel of experts of the VDI is to be strived for over the next 12 months, which was mutually agreed upon by the VDI and the AASE.

Moreover, the VDI shall energetically support the work of the AASE to be invited to the AASE annual meeting as well as to further promote the prominence of the education of Sales Engineers in Germany.

Other stable partnerships maintained with the Global Sales Science Institute through Prof. Dr.-Ing. Jobst Görne, Hochschule Aalen für Technik und Wirtschaft.

Cooperation with the VDMA, ZVEI and other professional associations are to be strived for in the upcoming months.

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