

Global Education Industry - Exploring the state of affairs in Austria

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Abstract

Digitization initiatives in the field of education always correspond with developments in the education industry. In recent years, globally networked development dynamics have emerged that are essentially characterized by an education-industrial complex and are also relevant in Austria. While on the one hand the corona-induced developmental boosts of 'digital' education are welcomed, especially in edtech contexts, on the other hand the international discourses on the problematic role of the global education industry can no longer be ignored. This contribution ties in with these discourses and explores the current state of affairs in Austria as regards formal education in schools. The lack of alternatives to an innovation path, which is often suggested by industry, education policy and education technology, is questioned.

Keywords: digitization, global education industry, education-industrial complex, digital capitalism, information privacy, surveillance capitalism

Introduction¹

Even before the corona crisis, calls for the “digitization of education” and “digital education” were so ubiquitous that the assumption of an educationalization formula (Veith, 2003) suggests itself in view of the current societal problems of reproduction and the technological and media-cultural transformation processes. Such calls are usually based on a very broad concept of digitization² which refers to various changes of processes, things and events directly or indirectly related to the spread and increasing use of digital technological systems. A search for a differentiated definition of the relationship between dynamics of digitization, mechanization (*Technisierung*), algorithmization, datafication, medialization, mediatization, mathematization, economization, optimization or educationalization in educational research will be in vain. Such definitions seem to be made unnecessary by a diffuse concept of digitization which does not only emphasize the technical dimensions but also different dynamics of learning, education, media, society and culture. The casualness that often informs references to “digital education” and “digital competences” goes hand in hand with tendencies of (1) attributing digital features to arbitrary phenomenal domains and (2) the reduction of communicative, pedagogical and didactic processes to their representation in digital technical systems as well as (3) fictional assumptions of the extensive availability of processes of learning and education.

Since the corona crisis began, neither the reductionist tendencies nor the widespread orientation on the primacy of technological responsibilities and the correspondingly saturated discursive contexts have seen much change. On the contrary, the hopes that the claims for innovation in connection to “electronic” learning in education, frequently disappointed in the past, might finally be realized on a large scale were fueled. Programs, strategies and initiatives of digitization are expected to be implemented in the area of education immediately so that up-to-date and functional forms of online learning and distance learning can become a reality. Moreover, everybody involved should be adequately prepared in case of another lockdown. At least, the corona-induced short-term solutions at schools and universities provide reasons and motives, not only in educational policy, to promote improved technological solutions and develop optimized educational offers. Application-oriented learning technology research and not least the education industry are also looking for solutions to the complex challenges.

There is no need to argue that it is not viable in the long run to maintain the improvising handling of digitization topics and digital tools in educational contexts. Furthermore, it is far from our intention to criticize the many honest efforts to find *ad hoc* solutions in difficult situations, which advise a certain modesty in view of the structural connections

¹ A German version of this chapter has been published as “Globale Bildungsindustrie – Erkundungen zum Stand der Dinge in Österreich”. *Medienimpulse*, 58(4), 2020, pp. 1-47.

² A narrow concept of digitization, on the other hand, refers to processes of modelling, formalization and algorithmization for the purpose of generating, editing and storing digital representations.

and technical challenges and for lack of established offers of training and further education in the area of media competence. Instead, we want to focus on exploring and critically reflecting on some education-industrial developments which are not sufficiently discussed in Austria as well as internationally. In recent years, globally networked development dynamics have emerged which are essentially characterized by an education-industrial complex and which are relevant in Austria as well. This contribution ties in with international discourses on the problematic part played by the global education industry and explores the status quo in Austria.³ The conclusion will question the lack of alternatives to an innovation path which is often suggested by industry, education policy and education technology.

Well-known tendencies of economization and recent education-industrial developments

Considerations on the economization of education are far from new. Some may remember debates in the 20th century that criticized the commodification of education. Since the 1970s, views of education as a commodity and a market, up to the instrumentalization of education for the market and the purchasability of education have been discussed time and again (cf. for example Lith, 1985; Krüger & Olbertz, 1997; Reheis, 2004). Apart from the fact that, from a historical point of view, questions of the usefulness and serviceability of education have been relevant at least since antiquity (Töchterle, 2009) and not only since the proliferation of human capital theories (Diebolt, Hippe, & Jaoul-Grammare, 2017), the promotion of autonomy and self-determination in action contexts conceived for their own sake was occasionally regarded as no less unduly simplified than vice versa the various fictions of the predictability of education on the basis of reducing people to factors of microeconomic calculation.

As far as the situation of the education industry and its criticism is concerned (Bernhard et al., 2018), there are definitely consistencies with a view to current developments, not least when it comes to the use of progressive vocabularies.

“The reactionary education-positivism, which wants to develop an education industry comparable to the other sectors and in doing so uses a deceptive progressive vocabulary, indicates the possibility of a relapse from a painfully achieved freedom into the natural history of humankind.” (Heydorn, 1980, p. 58)

Similar to the education-related discourses in ICT, digitization discourses also contain rhetorics of innovation (Haugsbakk & Nordkvelle, 2007) which address socially relevant learning, future-oriented education and market-relevant employability at the same time. Expressions like creativity, self-determination, critical thinking, media ethics and media

³ Similar studies have been done, for example, by Förschler (2018; 2021) as regards Germany and, in this special issue, by Haugsbakk (2021) with reference to developments in Norway.

education can also be found in definitions of “digital education” and “digital competences”. However, argumentative details of the corresponding specialist discourses are not usually taken into consideration.

On the other hand, the present developments and technocratic reforms go far beyond what was possible in the 20th century education industry in terms of the production and distribution of materials or the influence of educational politics. The complex dynamics of the interconnection of market logics and media logics as well as the possibilities for enforcing global strategies in the 21st century also offer new scopes for the education industry. The same is true for the options of small- sized surveillance and the monitoring of communication processes and, not least, the monetization of digital interfaces. Additionally, new developments in mathematics allow for, among other things, an interplay of education- and data-positivism that would have been impossible in the learning technology of the 20th century. The same applies to the interconnection of formal and informal contexts of learning in digital capitalism.

Wide parts of the digitization industries rely on instrumental logics of digital innovation and transformation, generally spreading suggestions that there are no alternatives to the path of innovation, and these suggestions need to be challenged (Mansell, 2018). This holds true not only for learning and education, but also for other socially relevant areas, especially since the concurrent efforts to render contingencies invisible only highlight the need for clarification and reflection.

Since digitization functions in this context – like in many others as well – as a universally adaptable, rhetorical and technological “transmission belt”, as it were, we are well advised to take into account not only the transformative developments of media, social, cultural, educational and technological constellations, but also the education-industrial complex which corresponds with these developments. This task is relevant not least because, along with the corona-induced short-term solutions, medium-term and long-term developments were initiated in the area of education as well (Williamson & Hogan, 2020). Parts of the “Masterplan Digitization” (BMBWF, 2018), aiming at “incorporating changes that result from the advancing digitization gradually and, above all, comprehensively in the Austrian educational system” (ibid.), were implemented this year, earlier than planned. Aside from the heroic gesture embodied in this plan,⁴ the question is as to which education-industrial developments are relevant in this context.

⁴ A differentiated examination of the concept of “masterplan” should include reminders of earlier uses of this term in the context of urban planning, synonymously used terms such as “framework planning” or “development planning” but also religious meanings (“his or her Master’s voice”) and AI-related expressions in science fiction offers (“its masters voice”).

The education-industrial complex - Components and strategies

The term 'bildungsindustrieller Komplex' is used quite rarely in German, and only recently in a prominent way (Münch, 2018). According to our research, the English equivalent, 'education-industrial-complex' (EIC) was coined much earlier by Anthony Picciano (1994) with reference to Dwight D. Eisenhower's farewell address to the nation on January 17, 1961, in which the outgoing American President voiced his concerns in view of a "disastrous rise of misplaced power" (Eisenhower, 1961) and antidemocratic developments by means of the pointed expression "military-industrial complex". Not coincidentally, Picciano used the term 'education-industrial complex' in connection with the increasing application of digital technologies in schools, which he still saw in its infancy even though he stated there were already networks and alliances between media companies, suppliers of education technologies and producers of hard- and software (see also Picciano, 2008). He predicted that they would increasingly interact in the following decade and become a force to be reckoned with (Picciano & Spring, 2013).

Picciano and Spring (2013) essentially characterize the EIC by three components which are closely related and partly overlap: ideology, profit and technology. As for the concept of ideology, they basically have a critical take on the free-market ideology. For the purpose of this article, we consider ideologies as bundles of ideas, beliefs, values and practices as well as hegemonic strategies of both immunization and enforcement. As there are no data in this regard for Austria, we want to provide a provisional overview in an initial approach along the lines of these three components.

Ideology

Austria's public schools are subject to the state curricula specified by the Federal Ministry of Education, Science and Research (*Bundesministerium für Bildung, Wissenschaft und Forschung, BMBWF*). Private schools are granted public status by the BMBWF as long as they "offer the guarantee for instruction in accordance with the regulations and satisfying the requirements of the Austrian school system" (BMBWF, 2004). Thus, private schools are also bound to the curricula of the BMBWF and can only operate within the pedagogic freedom of teaching, but not fundamentally deviate. "It is the teachers' task to enable the individual students to reach the goals determined by the curriculum by appropriately planning and designing instruction" (BMBWF, 2020e, para. 1).

Consequently, the approximately 1,000 private schools in Austria that hold public status (BMBWF, 2020h) do not have the possibility to write their own curricula and oblige corresponding regulations in the practice of teaching. This seems to be an obstacle for the companies involved in the EIC to let their ideology become effective in regard to the training, further education and the use in the classroom.

Nevertheless, the big international players have a cultural interest, not to be underestimated in economic terms, to lastingly position their products and services in schools and administrations. With a view to reaching economic business goals, they pursue different strategies which their public communication presents as beneficial for students and essential for protecting social wealth by using pedagogical framings of the activities and measures.

What seems interesting here is the recommendation by the BMBWF to use digital technology in schools that was included in a message to all state education authorities, supervisory boards for schools and subjects and to the schools themselves.

“The Federal Ministry of Education, Science and Research, being responsible for maintaining federal schools, provides federal schools with centrally acquired software licenses for education on devices owned by the school.

This concerns the following areas in particular:

Operating system and office applications, for example MS-ACH (Microsoft) software for vocational schools, or technical and commercial software (MathCAD, 3DCAD, Mesonic, BMD, SAP etc.)” (Strohmeier, 2018)

Looking at the big players on this market, we can roughly distinguish four parallel strategies that they use to position themselves and their products. Through direct marketing, their activities are addressed either (1) immediately at students or (2) indirectly by way of the parents and teachers.

Indirectly, the companies try to reach the schools (3) through conventional advertising or (4) through lobbying with the federal ministry.

Moreover, in the wake of the big international providers there is a gathering of national for-profit and non-profit institutions, service providers, publishers etc. who also follow their veritable goals. They frequently do so by following the strategies of the big players, as figure 1 illustrates regarding practice tests for MOS certifications by a national publisher of schoolbooks.

Figure 1

Practice tests for MOS certification (Source: teComp, 2020⁵)

WEITERE PRETESTS AUF MOS- ANFORDERUNGSNIVEAU:

Natürlich stehen Ihnen sowohl in Word als auch in Excel weitere PRETESTS zur Verfügung. Pretests ohne Zertifikats-Symbol stellen Anforderungen aus dem jeweiligen MOS-Curriculum, ohne jedoch die konkreten Aufgaben nachzubilden. Sie erhöhen damit die Flexibilität und das Kompetenzniveau Ihrer Kandidatinnen und Kandidaten.



The explanation of routines in working with commercial digital technical products is also the focus of *#weiterlernen*⁶, a joint initiative of the BMBWF and the *Innovationsstiftung für Bildung*⁷ in cooperation with NGOs, companies and individual stakeholders in education. Apart from references to edutainment and claims to facilitate “up-to-date education,” there are again parallels to the strategies of the big players, as shown by the following example:

“ACP eduWERK is a partner for all administrative, technical and pedagogical questions surrounding the introduction of digital learning companions in schools and other educational institutions. The goal is to have a positive impact on students’ motivation, fun and learning success and to live modern education. No matter if Apple, Microsoft or Google – we will find the perfect solution for every school.”⁸

However, perspectives of the clarification of techno-economic connections or contemporary educational intents in the sense of an assessment of the views on the self and the world in the context of digitality and mediality have so far been as nonexistent as basic ethical questions or technological alternatives of free software or open-source software.

Profit

Through the financial crisis of 2008-2009, at the latest, the capitalist structures have received a boost towards reassessment in consideration of technological criteria and tapped new areas of society in order to accumulate capital (Niesyto, 2017). The classical

⁵ The picture shows the range of MOS pretests offered by an Austrian schoolbook publishing house. The pretest serves as an aid to pass the MOS certificate. The pretest questions do not form concrete tasks according to the Microsoft's assessments, but increase the flexibility and the competence level of the candidates.

⁶ See <https://weiterlernen.at/>.

⁷ The Innovationsstiftung für Bildung was established effective January 1, 2017 through the federal National Endowment Act and has since come to take a prominent role in the context of digital innovation in education. It is headed by Jakob Calice. Information on activities, board members, oversight boards and academic advisory council can be found online at <https://innovationsstiftung-bildung.at/> as well as in the 2019 annual report (Die Innovationsstiftung für Bildung, 2020, p. 9).

⁸ See <https://weiterlernen.at/programm/programmpunkte/digitale-arbeitsablaufe-mit-google-classroom-1-2/> and <https://eduwerk.acp.at/>.

form of capitalism has expanded to include new varieties such as communicative capitalism à la Facebook (Hill, 2015), platform capitalism such as the GAFAM companies (Google, Apple, Facebook, Amazon) or Microsoft (Srnicek & De Sutter, 2017) and surveillance capitalism in which the knowledge about consumer behavior and its manipulation leads to monetization (Zuboff, 2019). In the context of media education, these forms are sometimes summarized under the term digital capitalism (cf. Buckingham, 2019a) while differentiated examinations of digital capitalism are ongoing (see, for example, Schiller, 1999; Staab, 2019; Pfeiffer, 2021).

Reaching the business objectives by offering services and trading in content is only one feature of digital capitalism. An incredible amount of data is waiting to be collected in keeping with data protection guidelines, which quite often leads to seemingly free-of-charge offers of services and products. The slightly changed line from classical advertising, “if the service is free, then *you* are the product – or at least your *data* is the product that is being bought and sold” (Buckingham, 2019a), puts this fact in a nutshell. Efforts surrounding the development and application of learning analytics already play a role in higher education that should not be underestimated, something which was clearly expressed during the presentation of a white book by the FNMA (Forum New Media in Teaching Austria) on the topic of learning analytics in fall 2019 (Leitner et al., 2019). Pedagogically and socio-scientifically informed alternatives to the data-positivist approaches in this field (see for example Bachmair et al., 2018) remain unconsidered, however. As regards the school sector, there is also an indicative passage on the website of the BMBWF: “In this context, offers for learning analytics and deep learning will play an even bigger role as well” (BMBWF, 2020a, chapter 3.2.2).

It cannot be determined here to what extent the protagonists of the EIC in Austria can be seen as organizations guided by monetary and data-oriented goals. The complex diversity of pedagogical, political, technological and economic goals and motives still awaits detailed examination. It is quite obvious, though, that several companies focusing on digital services and the sale of content are trying to exert increasing influence on education policy. After all, Austrian schools and their 1.1 million students (Statistik Austria, 2020) are a considerable number of future economic participants who will make use of their products and services.

While advertising activities in schools are relatively strictly regulated by the School Education Act and supplemented by the circulars surrounding the topic “Commercial advertising in schools – Prohibition of aggressive advertising practices” (BMBWF, 2015, 2016), lobbying by representatives of EIC companies who can effect policy changes on a government level is removed from public perception. Informal conversations with high-level representatives yielded suggestions at best, but no citable source. It is apparent, however, that even in Austria there are a number of companies, organizations, networks and alliances seeking profit and influence.

On its website, the BMBWF publishes “IT offers and recommendations” for hardware and software, telecommunications, internet and IT certifications (BMBWF, 2020b). It is hardly surprising at this point that this list includes such big players of international and national business as Microsoft, Adobe, Novell, SAP, Telekom and T-Mobile.

Technology

The manner in which digital technologies are implemented and used in schools has changed significantly in the past twenty years. While in the 1990s the focus was on hardware equipment and standard software, educational technologies like simulations, games and integrated learning systems were of no major importance. The strategic planning of school authorities was still shaped by questions of technical requirements such as leased lines for teachers. From today’s perspective, one point of criticism is that the selection of a learning platform was actually decided by the producers of this platform. Back then, Schulmeister recommended a ten-point list of review and assessment criteria (Schulmeister, 2000a) and also communicated this in an expertise for the BM:BWK (Federal Ministry for Science and Arts), as it was called at the time (Schulmeister, 2000b). The example of learning platforms serves as a good illustration of how efforts to consider the needs of the users, for instance to allow didactic scope, were quite successful to a certain degree. However, the freedom of schools to choose their own platform is subject to the recommendation of the ministry, as it was twenty years ago, and thus this decision lies with the service companies and their networks, which do successful lobbying here. Figure 2 may serve as an illustration of this.

Figure 2

Step 1 of the online registration at <https://serviceportal.eeducation.at/> (Source: eEducation Austria, 2020a)



Distance Learning Serviceportal-Registrierung für Lehrer/innen

Auf dem Distance Learning Serviceportal...

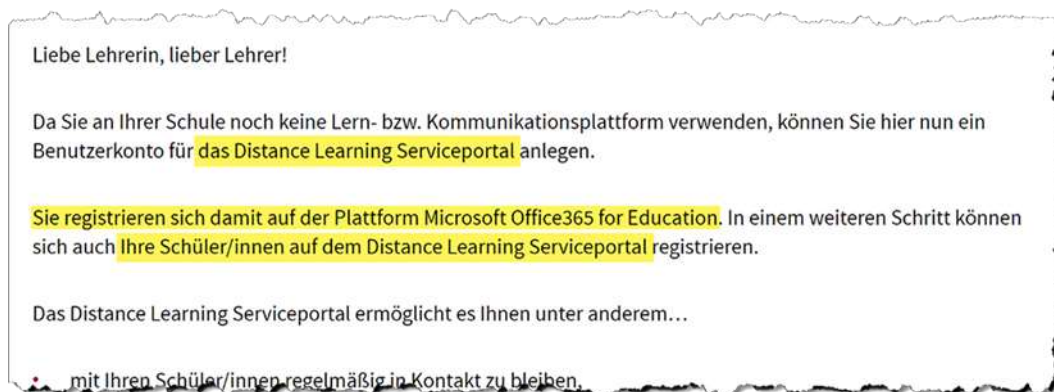
- finden Sie QuickGuides für einen schnellen Start in die Lern- bzw. Kommunikationsplattform, die an Ihrer Schule verwendet wird oder
- können Sie sich als Lehrer/in auf der Plattform Microsoft Office365 for Education registrieren, falls an Ihrer Schule noch keine Lern- bzw. Kommunikationsplattform eingesetzt wird.

Verwenden Sie bereits eine Lernplattform?

Ja Nein

Figure 3

Step 2 of the registration (Source: eEducation Austria, 2020a)⁹



The dilemma between free choices and the practical limits of handling a manageable number of platforms and tools is solved here clearly in favor of the Big Tech offers.

No later than with the spread of the technologies subsumed under the concept Web 2.0 (O'Reilly, 2009), smaller national players in the digital education industry also succeeded in launching products which were either based on the already existing services or filled niches in the market. In Austria just like in other countries (Williamson & Hogan, 2020), the global shutdown during the corona pandemic has contributed to advancing the dissemination of technology components and thus their influence on education. This has been accompanied by the grossly negligent failure to follow any data protection rules and warnings and by the suspension or at least flexible adjustment of pedagogical and ethical considerations. Due to the user-friendliness, availability and universal acceptance of the internet, digital technology components will be further developed as well. In the process, economic amortization perspectives and trends towards control and disciplining on the basis of a quantifying performance comparison will continue to be significant, even though tendencies of "philanthrocapitalism" (Münch, 2018, p. 11), found in a much more distinctive form in North America, can neither unfold without interference nor are they as inevitable as a law of nature.

Even though Picciano and Spring (2013) do not offer strong definitions of the terms 'ideology', 'profit' and 'technology', following their considerations offers a first approach to demonstrate the status quo in an exemplary way. It supports identifying relevant actors without claiming to provide a complete picture of the current situation. However, it would make sense to expand the framework and to further differentiate both conceptual and empirical dimensions. As regards conceptual differentiations, a wide range of theories of ideology offer relevant starting points. This includes Marxist traditions from the work of

⁹ The screenshot shows a relevant part of the distance learning registration form for teachers. Hereinafter, one can find access to a platform registration, if his or her school does not yet have an elearning or communication platform. The registration form leads to the Microsoft Office365 for Education Platform and lets enregistered teachers know that their students can also register at the distance learning service portal.

Antonio Gramsci, Louis Althusser, Theodor W. Adorno, Jürgen Habermas and others, critical traditions following Karl R. Popper, Hans Lenk or Ernst Topitsch as well as more recent postcolonial, polylogical and meta-critical takes on ideologies that reject claims that *all* theories are “ideologies” or that there are no more ideologies to be considered since postmodernism.

As for empirical dimensions, a starting point for a more in-depth investigation would be the analysis of the economic and legal situation of the companies and organizations involved. The different legal forms with their possibilities of representation and integration of individuals play a significant role concerning possibilities of action and influence. The associated degree of networking and interconnectedness between business and politics or with the involvement of civil servants even senior ones would provide a revealing picture of the people behind the organizations, although data collection in this area is extremely difficult. Furthermore, a differentiation of the companies involved according to their economic market position, reach and market penetration would also be worth considering, as effective market power is a factor that can be used to create facts or exert influence. Accordingly, qualitative and quantitative empirical in-depth studies would reveal that these networks can be ideologically diverse both in national and transnational perspectives, and that various policy frameworks on public and private education can be involved.

Explorations using the example of Austria - A snapshot

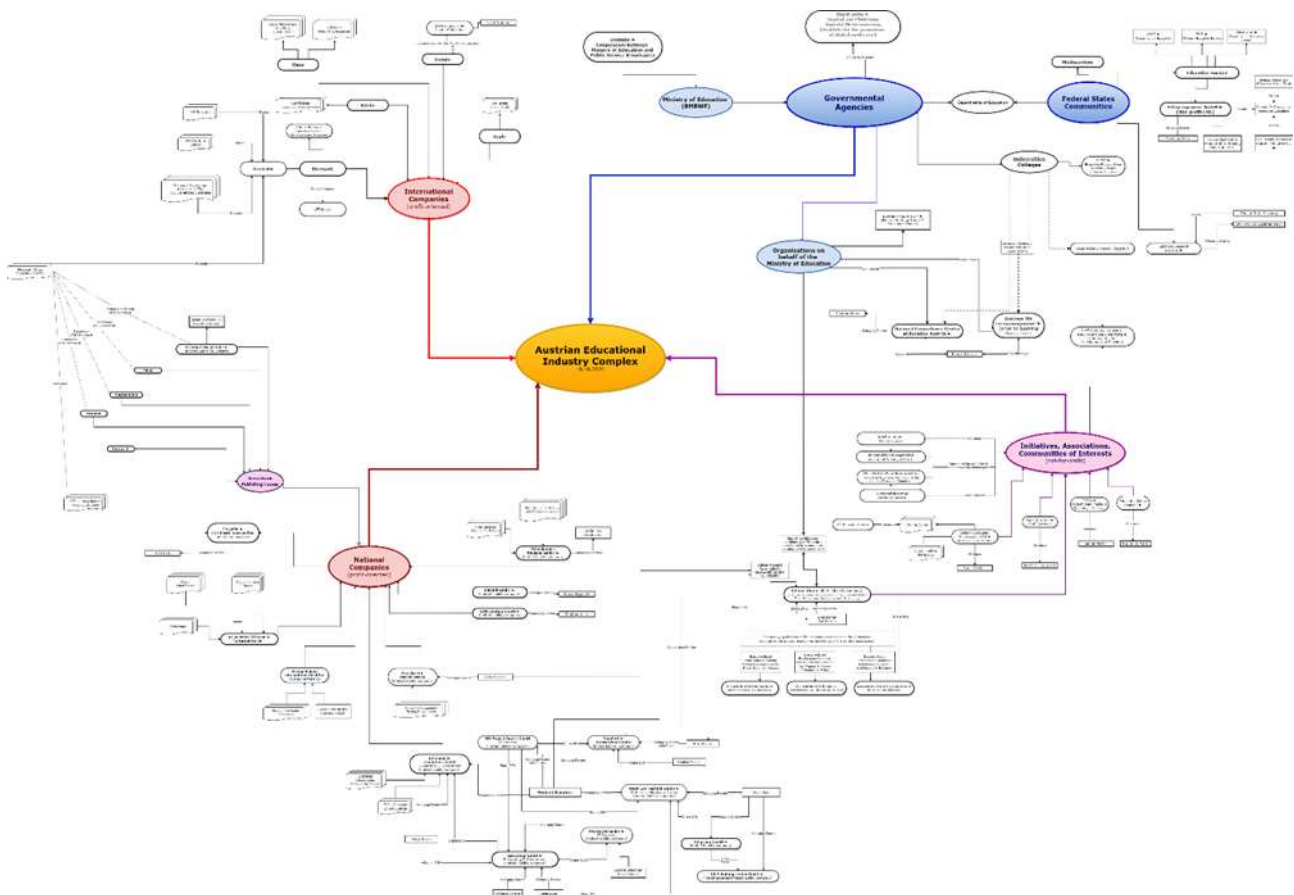
The media and technology landscape in the Austrian EIC can essentially be divided into four areas which will be described in more detail in the following.

- International, globally operating companies, making up a rather low number in the Austrian education market but having an influence on educational policy that should not be underestimated.
- National for-profit companies, among which the schoolbook publishers play a quite significant role.
- National non-profit organizations (at least for tax purposes) like initiatives, associations and interest groups.
- Public authorities, above all the Federal Ministry of Education, Science and Research as well as the education boards in the states and organizations acting on behalf of the BMBWF.

The following diagram (Figure 4) shows an overview of the four areas with important representatives and their influence on other EIC members.

Figure 4

*EIC in Austria (Source: authors' representation)*¹⁰



This compilation is of course not exhaustive due to the number of relevant companies and organizations, the complexity of the existing business structures, the interconnectedness of relationships among the individual participants and not least accelerated global and national development dynamics. In addition, only official sources and released documents were used to draw up the diagram in order to guarantee a legitimate interpretation of the facts.

For a better understanding of the interrelations, we want to present and illustrate some relevant aspects in regard to the internationally operating companies.

Microsoft

Without a doubt, Microsoft is the dominant international company in the Austrian EIC. Producing system and applications software for all areas of use, Microsoft Windows stands out with a market share of 77.1%, a figure that increases to 92% in the case of office software in German companies (Statista, 2020). These are sufficient arguments to insist that Microsoft products are an important and indispensable part of education for

¹⁰ For an online version of figure 4 that shows all the details, see https://bit.ly/mapind_EN.

professions.

Apart from the company's profit-orientation, Microsoft operates as one of the three "biggest players in education reform in K-12 schools" (Desai, 2015) in the USA with the philanthropic Bill & Melinda Gates Foundation. Though formally independent of one another, it may be assumed that the business strategy of the sponsoring company, Microsoft, is consistent with the initiator of the foundation (Verger et al., 2016).

Microsoft established its own branch in Austria in 1991. In 2003, either the Education Ministry or Microsoft – depending on the perspective and whose website is consulted – succeeded in negotiating a general license, the Austrian College and High School Agreement (MS-ACH), for the use of software products in secondary schools and teacher training colleges.¹¹ For teachers, the MS-ACH agreement contains a work-at-home license for lesson preparation and for supporting student projects. Since 2013, students at qualifying institutions have been able to use the Office 365 ProPlus Benefit (Microsoft, 2020b) until the end of their school career (BMBWF, 2020f). As a result, Microsoft supplies approximately 790 schools with server, systems and O365 standard software. At intermediate and higher-level vocational schools alone, there are almost 24,000 teachers and 184,000 students (Statistik Austria, 2019) who are provided with Microsoft products. Especially for technology companies it is true that winning the trust of customers means keeping their trust, often for life.

It is obvious that calls for integrating digital competences into the different curricula are not easily satisfied in the practice of daily school life. This was all the more reason for Microsoft to aim at filling this gap with certifications and to position itself early in the game. Already in 1997, the European Computer Driving License (ECDL) was established by the Austrian Computer Society (OCG) and introduced with the ministry's assistance at almost all school types starting in 1998. The tests for most of the required modules were based exclusively on Microsoft products. Today, the Microsoft IT certifications such as Microsoft Office Specialist (MOS), called manufacturer certifications, are actively and officially advertised next to the ECDL on the BMBWF website (BMBWF, 2020c). Thus, Microsoft achieves additional customer loyalty to its products in the courted target group.

Another Microsoft offer for teachers is the Educator Center, a learning environment designed especially for this target audience (Microsoft Educator Center, 2020). On the website, teachers are courted quite bluntly with the following lines:

“Microsoft supports a thriving community of passionate educators who are constantly learning, growing and working together to change students' lives and build a better world. The Microsoft Innovative Educator (MIE) Expert program is a

¹¹ A complete list of qualifying schools can be found on the ministry's website:
<https://www.bmbwf.gv.at/dam/jcr:dd40f2fe-bffa-47ec-b1d4-616d8e03eb4f/msach-schulenliste.xlsx>.

premier program created to recognize global educator visionaries like yourself.”
(Microsoft, 2020a, para. 2)

The impact of these measures on IT classes is quite obvious. While in curricula care is taken to use words like text processing, spreadsheet processing and databases, textbooks were and are almost exclusively used to teach on Microsoft products. A rather proactively worded text in a schoolbook on office management from Manz publishing reads like this:

“Preparing extensive publications [...] How can you manage this without putting a lot of time and money into desktop publishing programs? With Publisher (a desktop publishing program by Microsoft) this is relatively easy [...]” (Baier et al., 2017, p. 48 f)


The next page starts with the heading, “Word or Publisher? Both programs are Microsoft Office programs and [...]” (ibid.). There is no reference to alternative software, neither commercial nor free options.

This manner of pushing Microsoft can be found throughout all editions of almost all textbooks for this type of school and culminates in the marking of chapters which represent an adequate preparation for the MOS certification mentioned above. As it says on the website of the BMBWF: “Training material includes the official preparation material from Microsoft – available only in English, though – and also approbated schoolbooks” (BMBWF, 2020c, chapter “Schulungsunterlagen”), the latter in German, making the production of separate material unnecessary. Next, the website lists four publishing houses (*MANZ Verlag Schulbuch GmbH*, *Trauner Verlag + Buchservice GmbH*, *Westermann Gruppe Österreich* and *te.comp lernsysteme GmbH*) and provides links to tables that show which content can be found where. Incidentally, these PDF files are stored on the server of *ETC-Enterprise Training Center GmbH*, which has a very special interest in the dissemination as it is the self-proclaimed number one provider of IT seminars in Austria (ETC - Enterprise Training Center Homepage, 2020, footer) and implementation partner for certifications in schools (BMBWF, 2020c).


In this way, Microsoft ideally positions itself along the lines of the company’s marketing strategy and effects an unprecedented penetration of the competitive education sector by serving the areas hardware (for example Surface Go 2 at a special price for qualified students, parents and teachers), system and applications software and groupware (MS-ACH for students and teachers). From the company’s point of view, this strategy has been successfully implemented – not without the help of public authorities –, but for students this has meant the loss of a heterogeneous software market and the educational chances related to this diversity.

Figure 5

MOS content in a schoolbook (Source: te.comp lernsysteme GmbH, 2018)¹²



MOS Excel 2016 Core
Core Data Analysis,
Manipulation and Presentation

	
Create and manage worksheets and workbooks	
Create worksheets and workbooks	✓
workbook, copy and move a worksheet	✓
Navigate in worksheets and workbooks	✓
insert and remove hyperlinks	✓
Format worksheets and workbooks	✓
Customize options and views for worksheets and workbooks	✓
Configure worksheets and workbooks for distribution	✓
Manage data cells and ranges	
Format cells and ranges	✓
Summarize and organize data	✓
Create tables	✓
Create and manage tables	✓
Manage table styles and options	✓
Filter and sort a table	✓
Perform operations with formulas and functions	
Summarize data by using functions	✓
Perform conditional operations by using functions	✓
Format and modify text by using functions	✓
Create charts and objects	
Create charts	✓
Format graphic elements	✓
Insert and format objects	✓

Where Microsoft’s management team is planning to go in the future can be gathered from an article in the *Standard* newspaper from November 21, 2019: “Secondary school in Graz becomes ‘Microsoft Flagship School’” (APA, 2019). Microsoft equipped the “Digital Campus St. Leonhard” of the city of Graz with Surface devices and O365 and provided the teachers with a pedagogical (Microsoft-) concept by way of trainings. Even though such solutions are presented as showcase examples for certain education-political and economic reasons, from the perspective of educational science, data criticism and learning theory they represent part of the problem.

¹² Overview of Austrian textbook publishers and contents that are included in the free textbooks dealing with MOS certificates.

Apple

When you search the Education Ministry's website for the term "Apple", there are hardly any results although Apple has a strong presence in Austria's classroom with its iPads, as the 2018 IT infrastructure survey in the federal state Tirol shows. At the time of the survey, there were 194 tablets in use at elementary schools, 83.5% of which ran exclusively on the Apple operating system IOS. In all of compulsory education, there were 881 tablets with 60.7% IOS (BMBWF, 2018, p. 5).

Furthermore, interesting answers resulted from the question, "Does your school have its own pedagogical concept which guides the use of digital technologies for pedagogical purposes?" 84.8% of elementary schools negated this question. At the same time, 90.9% of primary schools leave the decision about the use of digital technologies to the respective teachers (BMBWF, 2018, p. 14).

Clearly, there is a pedagogical void developing here and it is no surprise that Apple, being a big player in the EIC, is focusing its marketing activities on tablets and offers support to schools as well as teachers. Accordingly, the website announces in no uncertain terms that the "APL (Apple Professional Learning Specialists) provide [...] professional learning plans to match learning goals" (Apple Professional Learning für die Schule, 2020, para. 5). This explicitly communicates the intention to exert influence on curricula which in principle have already been defined by the Ministry of Education.

Technology companies like Apple have not just led the way in terms of aesthetic and lifestyle aspects. They have always been especially good at identifying the target group in the education market and communicating how technology will change learning and generate more active, creative and competent students and teachers (Buckingham, 2019b).

Google

With its G Suite for Education, Google offers an integrated solution for communication and collaboration at educational institutions. It has been directly recommended by the BMBWF and is indirectly available for registration via eEducation Austria as the central G Suite authority (eEducation Austria, 2020b). As the corresponding website of the BMBWF states, "With Microsoft Office 365 and Google GSuite, free platforms are available to all schools to organize distance teaching" (BMBWF, 2020d). While 'free' platforms for all schools were communicated with effective publicity, the Microsoft Austrian College and Highschool Agreement, that is, the general license for the use of software products at secondary schools, was extended by another year (BMBWF, 2020g).

Google G Suite contains a number of hosted services like Google Drive, Google Docs, Google Sheets, Google Slides and Google Classroom and by its own account conforms to EU data protection requirements with servers located in the EU. There are currently no data processing contracts between the BMBWF and the big players since "due to group law

regulations the three cloud service providers [have] no latitude when it comes to the wording of the text”, according to a reply received by Mr. Thomas Lohninger from *epicenter.works* (FragDenStaat, 2020). When products are introduced autonomously by schools, “the school management in consultation with the IT administrator is responsible for complying with data protection regulations” (FragDenStaat, 2020). This makes such a use a risk that is difficult to calculate since hardly a principal will be able to correctly assess the legal situation.

National for-profit companies

Schoolbook publishers play a central role in the implementation of the curricula. De facto, the structure and content of schoolbooks have a significant influence on what is imparted to which extent. This makes them a factor that should not be underestimated by big players planning their marketing activities. This development should raise concerns not only in educationalist Michael Schratz, founding dean of the Innsbruck Faculty of Teacher Education: “Given that today schoolbooks are regarded as the secret curriculum, then what does it mean when software giants have their foot in the door here?” (Mayr et al., 2020, para. 7).

Apart from publishers, national for-profit companies are active especially as IT service providers in various fields. Their influence on teaching and school authorities is quite effective, as the following examples illustrate.

The “Schoolgames” by *freyspiel GmbH* offer innovative teaching materials which, according to their website (<https://www.schoolgames.eu/>), make school lessons more fun and relevant. However, the claim that the offer is free, as the page suggests, is no less questionable than the claimed relevance. On closer examination of the materials, it is striking that each practical example refers to an actual company. Thus, these example cases give the companies a platform to transfer information to students, from their management philosophy to career opportunities. The communicated contents certainly do not violate the provisions in the BMBWF circular about “Commercial advertising in schools – Prohibition of aggressive advertising practices”, but they do not reveal the intention to give “employers” an opportunity to position themselves, unless one bothers to follow the link “For employers” in the footer of the website. There, the first paragraph already makes clear how the free offer is funded: “Marketing is not sufficient when it comes to recruiting employees [...]. By getting involved with SCHOOLGAMES you will advertise both your employer brand and your career opportunities to students and thus increase the quality of your applicants” (Schoolgames, 2020, para. 1).

The *Playmit GmbH* (<https://www.playmit.com/>) calls itself Austria’s largest online quiz portal and offers its own certificates that lead to the desired job. Companies that will be glad to accept these certificates are conveniently listed on the website. Does this certificate business (or rather nuisance) of various suppliers affect the reliability of officially

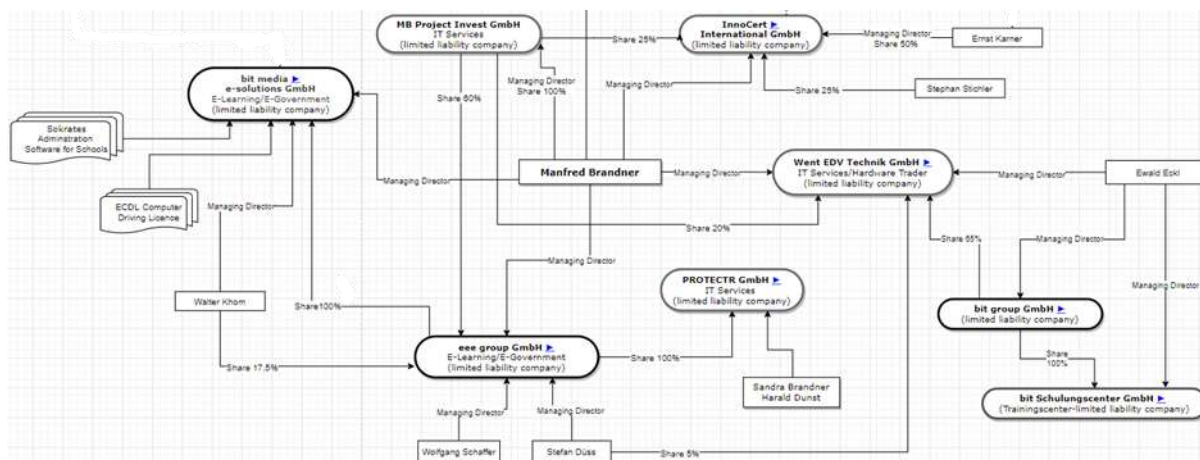
recognized certificates? Is it necessary in the Austrian education system to supplement an application with additional qualifications in the form of a certificate in order to demonstrate achievements which are mostly part of the curricular requirements anyway? The starting point of this new system of parallel qualification was in 1997 with the introduction of the European Computer Driving License (ECDL). Since then, 600,000 certificates have been issued and the ECDL program has reached 8.5% of the Austrian population. The ECDL at least offers a globally standardized examination program with accredited test centers (ECDL, 2020), something which does not hold true for the quality of the quiz and the associated certificates from the *Playmit GmbH*. That the ECDL exerts a significant influence on the curriculum and its contents becomes apparent in the following passage from the official text on the website:

“In many schools, the contents of ECDL classes serve as the basis for IT classes. With this approach Austria sets a model example in Europe [...]. In schools, the contents are imparted either as part of the regular lessons or voluntary subjects, elective and other school offers.” (it4education, 2020, para. 1 f)

The following detail from the diagram representing the Austrian EIC reveals an interesting constellation of a network of profit-oriented companies (Figure 6).

Figure 6

EIC detail (source: authors' representation)



It is hard to discern an immediate connection to the EIC, the BMBWF and thus the curricula, but this connection becomes cogent on closer examination of the organizational ties and the individual protagonists.¹³

bit media e-solutions GmbH (<https://www.bitmedia.at/>) provides IT services in the fields of e-learning, e-government and e-solutions. It is in charge of Sokrates School Administration and a wholly owned subsidiary of *eee group GmbH*

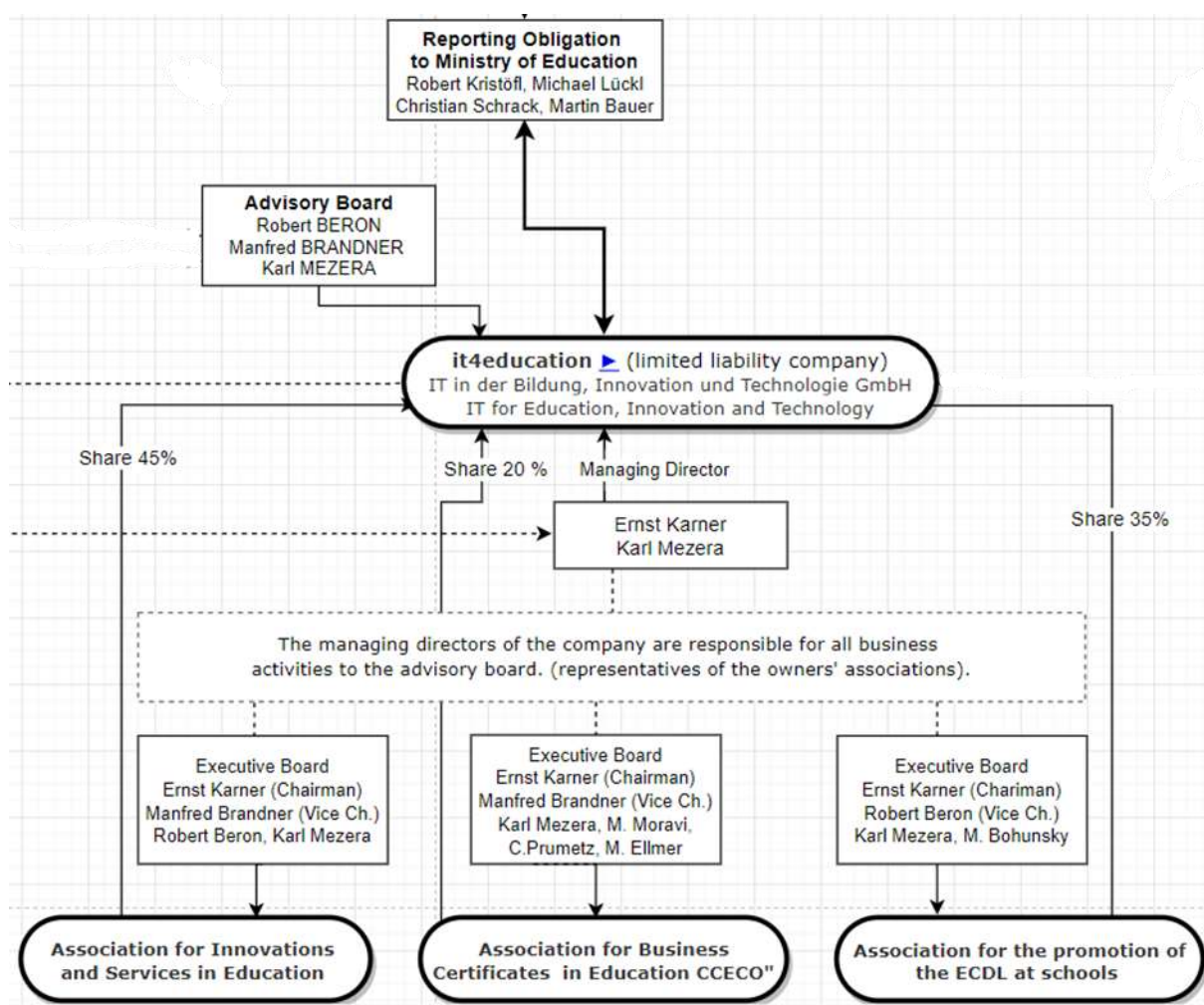
¹³ All data regarding the status have been retrieved from the business directory FirmenABC (<https://www.firmenabc.at/>).

(<https://www.eee.group/>), which is also active in e-learning and e-government, though on an international level. In addition, *eee group* owns 100% of *PROTECTR GmbH* (<https://protectr.at/>).

On the right side of the diagram there is *bit group GmbH* and its 100%-owned subsidiary *bit Schulungscenter GmbH* (<http://www.bit.at/>), responsible for training courses, qualifications and consulting. *bit group GmbH*, in turn, holds 65% of *Went EDV Technik GmbH* (<https://www.went.at/>), which also offers IT services and deals in hardware.

Figure 7

Structure of *it4education* (Source: authors' representation)



This raises the question about the link that connects this shareholding network of IT services. This link can only be found by looking at personal connections and responsibilities. It appears in the person of Manfred Brandner, who functions as managing director of *eee group GmbH*, *bit media e- solutions GmbH*, *Went EDV Technik GmbH* and *MB Project Invest GmbH*. Furthermore, he owns 100% of *MB Project Invest*, which holds

25% of *InnoCert International GmbH* (<http://www.innocert.at/>).

Brandner is one of the managing directors of *InnoCert*, alongside with Ernst Karner, who additionally holds 50% of the shares.

Since *InnoCert International GmbH* co-operates with *it4education (IT in der Bildung-Gesellschaft für Innovation und Technologie mbH)*, there is not just a strong tie but perhaps also one or the other conflict of interest. The connection is quite interesting because *it4education* is owned by three associations, which makes it a non-profit organization and comes with the obligation to report to selected persons within the BMBWF (*it4education*, 2020, para. 5).

Non-profit initiatives, associations, interest groups

Figure 7 shows the structure of *IT in der Bildung-Gesellschaft für Innovation und Technologie mbH*. Its mission is to “operate economically and implement the assignments of the owners (associations) in an efficient way” (*it4education*, 2020, para. 4). By its own account, one of its strengths is “the implementation of projects on behalf of the Education Ministry and the realization of ideas and visions in school education” (*it4education*, 2020, para. 2). The paragraph continues: “We support schools in order to live up to the demands of the economy”, which at least tends to suggest an interpretation of curricular contents in terms of economic requirements.

The managing directors of the company, Ernst Karner and Karl Mezera, are accountable to the board of advisors (Karl Mezera, Manfred Brandner, Robert Beron) in all operations. Because of this constellation it cannot be ruled out that there will be conflicting interests. While Ernst Karner and Manfred Brandner have close connections to for-profit companies via *InnoCert GmbH*, Robert Beron (former textbook author) runs two companies in the field of network administration and secure exam environments for schools (*iPack GmbH* and *CybrSoft GmbH*). What is also remarkable is the fact that all three protagonists are alternately on the boards of all associations and thus accountable to themselves.

The objective of the associations that make up *IT in der Bildung GmbH* is mainly the brokering of certificates between organizing teachers or examiners and examining institutions. The offer ranges from ECDL (European Computer Driving License), Typing (10-minute typescript), Entrepreneur's Skills Certificate, certification as waste management expert, certificates for SSC BASIC/ADVANCED (Social Skills Certificate on a European level) and various SAP certificates (*it4education*, 2019). The executing body for the ECDL and Typing certification is the Austrian Computer Society (OCG) (<https://www.ocg.at>), bringing it into a close partnership with *IT in der Bildung GmbH*.

This territory is also coveted by the special interest groups for workers and employees (Chamber of Labor – AK) and businesses (Austrian Chamber of Commerce – WKO). While

the curricula for the vocational matriculation exams offered by *Wifi* and *Bfi* closely follow the school curricula, there is a particular interest in elementary instruction for future apprentices. The Chamber of Commerce is strongly committed to economic education, entrepreneurship education and vocational orientation, for example with the platform “School meets economy” (“Schule trifft Wirtschaft”) for offers that businesses have for schools (Schule trifft Wirtschaft, 2020). The counterpart, the Chamber of Labor, provides simulation games and workshops in order to highlight economic and political connections from the viewpoint of the world of work (AK & Schule, 2020).

Organizations working on behalf of the BMBWF

Beyond that, there are a number of organizations and institutions which act on behalf of the BMBWF and are thus very close to the implementation of the required educational objectives. In addition, there are platforms such as the education platform *edutube* (<https://www.edutube.at/>), which provides Austrian schools, teacher training colleges, universities of applied sciences, adult education centers and universities with short videos and documentaries that are soundly researched and meet the quality standards of public-law broadcasting institutions. Co-operations with universities and colleges allow connections to teacher training. A collection of different, also former projects and initiatives is the National Competence Center eEducation Austria directed by Andreas Riepl. It includes a community surrounding digital competences (digi.komp) as well as the projects eTapas, eBuddy-System, MINT-Tag etc. The examples listed in the category “Resources” show the striving towards platform and software independence (eEducation Austria, 2020a), though it is not always successful. It may be taken for granted that there is an influence on instruction in school as intensive networking is demanded and also exists on the platforms.

On the whole, this investigation points out that even in Austria there are not only discursive and institutional interrelations which cannot be adequately understood without rudimentary knowledge of the global and national education industry. Pedagogical-practical efforts in schools and colleges also largely follow the outlined education-industrial framework. This does not mean that critical-reflexive ambitions, activities of differentiated media education or edtech alternatives such as the one by the initiators of Free Open Source Software in Schools (<https://linux-bildung.at/>) are irrelevant. Which practical role they (could) currently play in Austria would have to be shown empirically. Corresponding research could point out potentials for different innovation paths in education which are not located *ex ante* in the footer space of the global development views of Big Tech. At least for those groups which want to take the established global goals for sustainable developments seriously it should be a matter of consensus that, in order to reach these goals, it takes media-technological diversity but also, beyond that, leeway for education processes for their own sake and for the promotion of creativity, the capacity for self-determination and critical facility.

Those groups, however, who associate rhetorics of innovation and sustainability with programs of increased dependences on tech giants, a primacy of algorithm-driven logics of imparting and utilizing education as well as with the intensified promotion of commercialized educational structures, should not overlook that the global education industry has so far not furnished proof that it contributes to lastingly overcoming social and education-related dynamics of inequality. Insofar as it contributes to the overcoming of national and regional dynamics of inequality in the sense of an engineered synchronization or cooptation of teaching and learning processes, this rather gives cause for skepticism, at least from a pedagogical and democratic perspective, and by no means for euphoric progress reports.

Conclusion and prospect

The corona-induced necessities for action have shown that in the field of education – as well as in other areas of society – many things could be organized and designed differently. In that sense, the hopes for a “return to normalcy” and those for “taking the historic opportunity for renewal” are balanced. Still, the creative, more or less successful *ad hoc* solutions cannot hide the fact that an intensive promotion of the global education industry has taken place without broad public debate (Williamson/Hogan, 2020). From that point of view, the developmental boosts affect more the known tendencies of commercialization, partial privatization, datafication and technicization of education and less the creative forms of didactization, data-critical information, solidary emancipation or participatory reformation.

For an understanding of the digital, medial, organizational and economic transformations, it is indispensable to analyze the interrelations in the global education industry and educate the public about factual and foreseeable trends. Such a clarification and the contrasting presentation of various potential paths of innovation in education constitute important building blocks of critical reflection and the exploration of possibilities how the historical-medial constellations can be shaped. Highbrow accusations of a software colonialism are of as little help here as sweeping conspiracist statements concerning data prostitution, or glossy future scenarios of digital innovation serving an education-industrial complex.

As for developing software for educational purposes, it is important to learn the lessons from the disruptive time in order to avoid long-term vendor lock-in effects and to ensure data sovereignty in educloud solutions as they are currently emerging. Examples for alternatives are offered, among others, by the Free Software Foundation (FSF, fsf.org), the Free Software Foundation Europe (FSFE, fsfe.org), the Austria-based “Freie Open Source Software in der Schule” (linux-bildung.at) and the initiative “Freie und quelloffene Software” (FOSS-Free and Open Source Software, foss.nrw) in the public administration of the city of Dortmund. In contrast to suggestions of the global education industry, there are

many paths of digital innovation and transformation, if any. And as for educational content, there is a multitude of options for substantial support of co-ops and the co-creative production of commons.

To conclude, the contribution illustrates some facets of the global education industry and Austrian specifics. In view of the dynamic developments and the lack of research in this field, the explorations on the status quo can only be sketchy and could also have different emphases (see for example Verger, 2016; Münch, 2018). It strikes us as important that well-known concerns over democratic control, public debate and participatory design of schooling and education continue to be relevant. It would be naïve to assume that the big technology companies enter the different sectors of education primarily out of pedagogical, philanthropic or charitable considerations (Buckingham, 2019b).

A detail not to be underestimated lies in the widespread declaration of certificates as proof of additional qualifications which are obligatory for students in order to be prepared for the job market. At first glance, the excursus on corporate certificates may appear to be just another aspect of the study. However, considering this issue is of special importance in the context of the performance of the EIC actors. It should therefore not go unmentioned. Acquiring additional qualifications seems to be useful and beneficial for the individual student and his or her further career path, and it is. However, the associated, product-related certificates in the service portfolio of the big players represent an essential focus of their market penetration strategy, because these certificates promote and consolidate the bond with the product and its use beyond the school.

Certificates, badges and “driving licenses” – some crafted by the providers themselves and without transparent standards – have already achieved the status of a parallel universe next to official certificates and thus diminish the significance of the latter as reliable proof of achievement. In many cases, especially in the context of secondary schools, additional qualifications cover only parts of the syllabus, the entirety of which would be accounted for anyway and at no extra costs by graduation certificates (*Zeugnis* and *Matura*). The situation seems to be different in elementary schools, as the contents of the certificates that are offered highlight obvious gaps in the education system, especially when it comes to media education. These gaps could be a wake-up call for the decision-makers to incorporate media-pedagogical contents in the curricula and evaluate corresponding interdependences.

One task of media and education research consists in contributing to the visibilization of contingencies within the ongoing transformation processes and pointing out possibilities to shape school lessons, education and training on all levels based on education, learning, knowledge and media theory. The subordination of processes of education planning and design under the quasi- monopolist interests of a global education industry corresponds with interlinked dependencies which in the long run create more problems than solutions.

An education-economic perspective also supports abandoning the excessive outsourcing of core functions of education that are relevant for civil society and constitutionality to private providers or technology companies. This is also true for a small country like Austria, which, considering European educational traditions, has both resources and potential for future-oriented alternatives to reductionist understandings of “digital education” in the sense of the commercialized application of digital tools for lesson plans and mechanistic learning processes prefabricated by the education industry. For devising educational concepts and developments in learning technology, the ethics of the commons, of digital sovereignty and informational self-determination can provide direction. An orientation on principles of *algocracy* (Danaher, 2014) in the sense of data mining together with data-based behavioral modification is no more an inevitable requirement than an orientation on data-based surveillance and monitoring strategy (*eduveillance*). Even though the global education industry is believing in such orientations as well as in data-economic models of consumerism and post-democratic developments, this is no reason whatsoever to not even take alternative paths of innovation into consideration.

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