Readiness of High Schools for Industry 4.0
On the Basis of Their Websites Profiles

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Abstract
In this study, it is aimed to evaluate the readiness for Industry 4.0 depending on the profiles of private and public high schools and to develop suggestions for practitioners and researchers in this framework. The Internet is one of the important resources that individuals refer to while performing practices, making decisions and reasoning in their daily lives. In the research, official websites of private and public high schools in the sample were used as study material. The research was carried out in the 2021 academic year within the scope of 20 high schools in the sample of private and public high schools affiliated to the Ministry of National Education in the Bornova District of İzmir province. Random sampling method was used in the study. In data collection techniques, researchers use primary data and, in this direction, data were collected from the official web pages of the schools. In the context of Industry 4.0, within the framework of the development stages of web technology, the situation of communication model, information quality, target audience, content, interaction level variables on the official web pages of the schools was examined. 74% of the web profile percentages of public high schools in the study group are on the Web 1.0 platform, and 26% are on the Web 2.0 platform. On the Web 3.0 platform, it was observed
that no public high schools were included. Looking at the web profile percentages of private high schools, it is seen that 66% are on the Web 1.0 platform, 32% are on the Web 2.0 platform, and only 2% are on the Web 3.0 platform. Based on the web profile of private and public schools, when their readiness for Industry 4.0 is evaluated, it is seen that most of them are still in the Web 1.0 phase. Although it is seen that the changes in the education system occur slowly, applications such as augmented reality, virtual reality simulations, internet of things, digital learning platforms and educational data mining that come with the Education 4.0 paradigm are partially included in the targets of the 2023 MEB Vision document, but schools are still able to express themselves. It is seen that the use of these technologies on websites that are a part of their corporate identity is not settled. It is thought that the educational information network model, which includes artificial intelligence applications such as EBA, which is used more frequently with the Covid 19 pandemic process, can also be used on the websites of schools, and this will provide an awareness and acceleration in the adaptation of schools to innovations in this sense.

**Key Words:** High School, Industry 4.0, Education 4.0, websites

**Structured Abstract**

Education 4.0 is an education paradigm that emerged as a result of the adaptation of education systems to Industry 4.0 and the advancement of technology. With Education 4.0, a transformation is expected at all levels of education. In this transformation phase, the readiness of the education system, and in this context, schools and individuals, becomes important. Accordingly, the characteristics of people also change their perspectives on technology. The technology readiness of schools is seen in their web profiles, which is a part of their corporate identity. Corporate websites are an important tool that enables institutions to configure their identities on the internet (Koçer, 2017). Educational institutions try to promote themselves effectively on their corporate websites in order to include more qualified students and teachers in their institutions during their preference periods. Considering the effect of corporate websites on the formation of corporate identity, it can be said that the change in Web technology should also be considered. When we look at the development of web technologies, in the Web 1.0 era, people only interact with
machines. With Web 2.0, people are starting to interact with each other, apart from machines. With Web 3.0 technology, both machines and humans interact together (Aslan and Kolancı, 2019). It is thought that this development in web technologies may also be effective on the web pages of schools. The readiness of schools to enter Industry 4.0 can be understood from the use of technology in which technology users involve external or public parties. When the literature is examined (Öztemel, 2018; Nohutçu, 2006; Çelen, 2017; Demir, 2018; Gündüzalp & Şener, 2018; Hussin, 2018; Yetik, Akyüz & Bardakçı, 2019; Çetin, Nayır, & Taşkın, 2020) the concept of Education 4.0 appears to have been addressed to a limited extent. In the international literature, it has been seen that there is a study (Istifadah, Komariah, Amalia, and Thahir, 2020) in which school websites are discussed in the context of Industry 4.0 at the secondary school level, but no study has been found in the national literature. In the light of this information, the aim of the study is to examine the readiness for Industry 4.0 depending on the web profile of private and public high schools affiliated to the Ministry of National Education and to develop suggestions for practitioners and researchers in this framework.

Document analysis method in qualitative research design was used in this study. Document analysis is a qualitative research method used to analyze the content of written documents meticulously and systematically (Wach, 2013). The official websites of private and public high schools affiliated to the Ministry of National Education were used as material in the research. Internet addresses have been compiled from the official websites of the Ministry of National Education. This research is carried out in the sample of private and public high schools affiliated to the Ministry of National Education in the Bornova District of İzmir province. Random sampling method was used in the study. Based on the number of public and private schools, 20 schools were chosen as the sample. It represents 35.71% of the study universe. In the study group, a minimum of 10% sample is taken in descriptive studies, while 20% is needed in small universes (Gay, 1987; cited in Arlı and Nazik, 2001:77). In data collection techniques, data were collected from the official web pages of the schools in this study. Answers were sought to the following questions regarding the website profiles of the high schools in the sample.

- What are the descriptive data on the official websites of schools?
  - Are data of the name of the school, the number of teachers and the number of students available on the school official website?
Readiness of High Schools for Industry 4.0 On the Basis of Their Websites Profiles

✓ Is the contact information of the school (Google maps, phone, e-mail, social media accounts, level status) available on the school official website?

✓ What is the usage status of private/meb domain name regarding the school official web page?

• What are the web features of the schools in the context of Industry 4.0;
  ✓ communication model (broadcast, interactive, engage/invest),
  ✓ nature of the information (static, dynamic or portable / personal),
  ✓ website focus (organization, community or individual),
  ✓ content (ownership, sharing, accuracy) and
  ✓ variables like interaction (web form, web app, smart app)

When the findings are evaluated, 74% of the web profile percentages of public high schools in the study group are on the Web 1.0 platform, and 26% are on the Web 2.0 platform. On the Web 3.0 platform, it was observed that no public high schools were included. Looking at the web profile percentages of private high schools, it is seen that 66% are on the Web 1.0 platform, 32% are on the Web 2.0 platform, and only 2% are on the Web 3.0 platform. Based on the web profile of private and public high schools, when their readiness for Industry 4.0 is evaluated, it is seen that most of them are still in the Web 1.0 phase. Although it is seen that the changes in the education system occur slowly, applications such as augmented reality, virtual reality simulations, internet of things, digital learning platforms and educational data mining that come with the Education 4.0 paradigm are partially included in the targets of the 2023 MEB Vision document, but schools are still able to express themselves. It is seen that the use of these technologies on websites that are a part of their corporate identity is not settled yet. It is thought that the educational information network model, which includes artificial intelligence applications such as EBA, which is used more frequently with the Covid 19 pandemic process, can also be used on the websites of schools, and this will provide an awareness and acceleration in the adaptation of schools to innovations in this sense.

Keywords: High School, Industry 4.0, Education 4.0, technology, web
Introduction

Education 4.0 represents the adaptation of educational systems to the principles of Industry 4.0. This emerging educational paradigm is a direct result of technological advancements. Education 4.0 entails a comprehensive transformation across all levels of education. Within this transformative phase, the preparedness of educational systems, schools, and individuals for technology assumes a pivotal role. Consequently, individuals' attitudes towards technology undergo a shift. The 'Technological Readiness Index,' introduced by Pasaruman (2000), assesses the degree to which individuals feel equipped to embrace technology. Technology readiness pertains to people's inclination to adopt and utilize novel technologies. This readiness is shaped by a combination of mental facilitators and inhibitors that influence an individual's propensity for embracing new technologies. It is worth noting that the technological readiness of schools within the organizational structure of the education system also holds significance in this context.

The technological readiness of schools is reflected in their web profiles, which constitute an integral part of their corporate identity. Universities provide a prominent example among educational institutions. Universities actively leverage their corporate websites to effectively showcase their strengths, aiming to attract more qualified students and faculty members during enrollment periods. Corporate websites serve as critical tools enabling institutions to define their online identities (Koçer, 2017). Recognizing the impact of corporate websites on corporate identity formation, it is essential to consider the evolution of web technology. The transition from Web 1.0, characterized by human-machine interaction, to Web 2.0, marked by interpersonal interaction, and finally to Web 3.0, where both machines and humans interact in tandem (Aslan and Kolancı, 2019), underscores the potential influence of these technological developments on school websites. Consequently, technology evolves into a social structure within the virtual realm, facilitating access beyond physical limitations.

Considering the technological advancements, it becomes evident that numerous public and private schools in Turkey encounter challenges when adapting to digital transformation. Schools' readiness to embrace the principles of Industry 4.0 can be gauged through their utilization of
technology and engagement with external or public stakeholders. Despite several studies in the literature (Öztemel, 2018; Nohutçu, 2006; Çelen, 2017; Demir, 2018; Gündüzalp & Şener, 2018; Hussin, 2018; Yetik, Akyüz & Bardakçı, 2019; Çetin, Nayır, & Taşkınc, 2020), this topic has only been addressed to a limited extent. While there exists an international study (Istifadah, Komariah, Amalia, and Thahir, 2020) investigating school websites within the context of Industry 4.0 at the secondary school level, a corresponding study within the national literature is notably absent. With this context in mind, the primary objective of this study is to assess Industry 4.0 readiness based on the web profiles of private and public high schools under the Ministry of National Education and to offer practical insights and research suggestions within this framework.

Method

Qualitative research model was used in the study. As a method, document analysis method was used. Document analysis is a qualitative research method used to analyze the content of written documents meticulously and systematically (Wach, 2013). Document analysis is a systematic method used to examine and evaluate all documents, both printed and electronic materials. Like other methods used in qualitative research, document analysis requires the examination and interpretation of data to make sense of it, to form an understanding about the subject, and to develop empirical knowledge (Corbin & Strauss, 2008).

Research Material

The Internet is one of the important resources that individuals refer to while performing practices, making decisions and reasoning in their daily lives. The official websites of private and public high schools affiliated to the Ministry of National Education were used as material in the research. Internet addresses were obtained from the official websites of the Ministry of National Education and analyzed.
Table 1

Private and Public High Schools in the Study

<table>
<thead>
<tr>
<th>School type</th>
<th>Numbers</th>
<th>Number of selected schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>High schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Private</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>20</td>
</tr>
</tbody>
</table>


Random sampling method was used in the study. Based on the count of public and private schools provided in Table 1, a total of 20 schools were selected as the sample. This type of sampling occurs when the researcher chooses a portion of the entire population in any manner, in accordance with the determined sample size (Kılıç, 2013). This sample represents 35.71% of the study group. Within the study group, a minimum sample size of 10% is taken for descriptive studies, while a 20% sample size is required for smaller populations (Gay, 1987; as cited in Arlı and Nazik, 2001).

Data Collection Process and Analysis

In data collection techniques, the researchers used primary data. In this sense, data were collected from the official web pages of the schools in this study. Answers were sought to the following questions regarding the website profile of the high schools in the sample.

- What are the descriptive data on the official websites of schools?
  - Are data of the name of the school, the number of teachers and the number of students available on the school official website?
  - Is the contact information of the school (Google maps, phone, e-mail, social media accounts, level status) available on the school official website?
  - What is the usage status of private/meb domain name regarding the school official web page?
- What are the web features of the schools in the context of Industry 4.0;
  - communication model (broadcast, interactive, engage/invest),
✓ nature of the information (static, dynamic or portable / personal),
✓ website focus (organization, community or individual),
✓ content (ownership, sharing, accuracy) and
✓ variables like interaction (web form, web app, smart app)

Findings and Discussion

The results of the study were obtained following the analysis steps and examined in two main dimensions. These dimensions provide descriptive information about the web profile of private and public high schools, communication models of the accessed websites, information and content quality, target audience, and web characters dimension in the context of the interaction level sub-dimensions. The research findings of private and public schools are discussed in separate sections.

Information describing schools can be found on their websites.

The first research dimension aims to obtain descriptive information about the websites of private and public high schools in the study group. Information regarding private high schools was obtained from http://ookgm.meb.gov.tr, whilst information on public high schools was obtained from https://www.meb.gov.tr/baglantilar/okullar/index.php and Table 2.

Table 2. Descriptive Information on the Websites of State High Schools

<table>
<thead>
<tr>
<th>School type</th>
<th>Name</th>
<th>Number of Students and Teachers</th>
<th>Contact information about the school</th>
<th>Web address specific to high</th>
<th>Using meb domain name (k12)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Google Maps Phone Mail Social Media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public High Schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>D2</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>D3</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>D4</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>D5</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 2 shows the contact information and communication types of school websites, specifically for high schools and based on the usage of the MEB field. Analyzing the contact information based on level specificity and domain name usage reveals that state high schools have a similar web profile. The launch of the School Website Management Panel, named Turkey's most comprehensive website project by the Information Technologies Group Presidency, in 2012 (MEB, 2012), aimed to institutionalize all institutions affiliated with the Ministry of National Education and improve website management by centralizing it.

Having a standardized website appearance has usability benefits (Hebebci & Selahattin, 2017). The web profile of the examined sites is institution-based and static, which, combined with the change in web technologies, implies compatibility with Web 1.0 technology (Choudhury, 2014). In this context, it can be argued that they are falling behind in terms of technology and lagging in the development of technology in a descriptive sense.

The compliance with Education 1.0 and Education 2.0 in the way individuals access information (Demir, 2018) during the development of education indicates that the integration of social media, which is expected in Education 3.0, has not been fully realized (Öztemel, 2018). The absence of social media information in Table 3's web profile information confirms this. The Ministry of National Education's official article, "Social Media Accounts," emphasises that schools can use social media to represent themselves while emphasizing the need for protective measures for personal data. The Ministry plans to introduce new practices in this regard. As such, it is expected that information about these accounts will be included in the web profiles of state educational institutions in the future.
### Table 3. Information on the Web Sites of Private High Schools

<table>
<thead>
<tr>
<th>School Type Name</th>
<th>Number of Students</th>
<th>Number of Teachers</th>
<th>Contact information about the school</th>
<th>Web address specific to high school level</th>
<th>Using meb domain name</th>
<th>Domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ö1</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>No address</td>
</tr>
<tr>
<td>Ö2</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>Mixed K12</td>
</tr>
<tr>
<td>Ö3</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Mail isn’t active</td>
<td>-</td>
<td>Yes K12</td>
</tr>
<tr>
<td>Ö4</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>No address</td>
</tr>
<tr>
<td>Ö5</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Yes (com)</td>
</tr>
<tr>
<td>Ö6</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Mixed (com)</td>
</tr>
<tr>
<td>Ö7</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Inaccessible(com)</td>
</tr>
<tr>
<td>Ö8</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Inaccessible(com)</td>
</tr>
<tr>
<td>Ö9</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>Yes K12</td>
</tr>
<tr>
<td>Ö10</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Yes (com)</td>
</tr>
</tbody>
</table>

Table 3 shows student and teacher information, contact details, and types of communication for private high schools affiliated with the Ministry of National Education, specific to the high school level and usage status of the MEB field. The descriptive information of private high schools is different from that of public high schools when contact information is assessed in terms of level specificity and domain name usage.
Information on the number of students and teachers is available for all of them due to the standardization of websites of state high schools (Meb, 2012a) when student and teacher information is taken into account. However, this information is not accessible for most private high schools. In this respect, the ability of private schools to choose their personnel and their performance in a competitive environment (Ensari, 2002) could serve as a criterion for their selection (Eyüboğlu, 2002). One possible explanation for the lack of teacher and student information is the high expectations of parents in this regard. When examining the contact information, differences were found in basic details compared to those provided by public high schools. Two of the ten schools selected for analysis of website accessibility in Table 3 lacked an official website and in two others, the website address was not accessible. Due to the limitations of early web technologies, it can be argued that private schools, despite having more flexibility in determining their goals, standards, and methods (Chubb & Moe, 1988), are unable to fulfill the publishing criteria of Web 1.0, thus resulting in lagging behind public high schools. Table 3 suggests that social media accounts are scarcely used by private high schools, highlighting the mismatch between the use of social media in education, which is a significant aspect of the Education 3.0 trend (Öztemel, 2018), and the information available on private high schools' official websites. Despite the assertion that factors such as the intensity of social activities in private schools contribute to their appeal (Açıkalın, 1989), the active use of social media in this context is deemed an unexpected and paradoxical discovery. Moreover, the fact that a method of communication, such as social media, which is restricted in public high schools, is absent in private high schools, where private domain names are prevalent, is noteworthy.

4.3. A study of the web characteristics of official school websites

Our second research question investigated the readiness of official school web pages for Industry 4.0 technology by examining various variables such as communication model, information quality, target audience, content, and level of interaction. The criteria used in the evaluation of web characteristics are presented in Table 4.

Table 4. Industry 4.0 Readiness Parameters and Criteria of School Websites

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Web 1.0</th>
<th>Web 2.0</th>
<th>Web 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Broadcasting</td>
<td>Interactive</td>
<td>Online</td>
</tr>
<tr>
<td>Nature of information</td>
<td>Static</td>
<td>Dynamic</td>
<td>Portable and personal</td>
</tr>
</tbody>
</table>
The school's official web pages were evaluated according to the parameters and criteria listed in Table 4. Table 5 provides the classification of website characteristics based on the evaluations.

### Table 5. Web Character Parameters Information of Private and Public High Schools*

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Web 1.0</th>
<th>Web 2.0</th>
<th>Web 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication model</td>
<td>D3, D7, D8, D9</td>
<td>D1, D2, D4, D5, D6, D10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ö1, Ö4, Ö8,</td>
<td>Ö2, Ö3, Ö5, Ö6, Ö7, Ö9, Ö10**</td>
<td>-</td>
</tr>
<tr>
<td>Information nature</td>
<td>D7, D8, D9</td>
<td>D1, D2, D3, D4, D5, D6, D10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ö1, Ö4, Ö8,</td>
<td>Ö2, Ö3, Ö5, Ö6, Ö7, Ö9, Ö10**</td>
<td>-</td>
</tr>
<tr>
<td>Target group</td>
<td>D1, D2, D3, D4, D5, D6, D7, D8, D9, D10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ö1, Ö2, Ö3, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9,</td>
<td>Ö10</td>
<td>-</td>
</tr>
<tr>
<td>Contents</td>
<td>D1, D2, D3, D4, D5, D6, D7, D8, D9, D10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ö1, Ö2, Ö3, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9,</td>
<td>Ö10</td>
<td>-</td>
</tr>
<tr>
<td>Interaction level</td>
<td>D1, D2, D3, D4, D5, D6, D7, D8, D9, D10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ö1, Ö2, Ö3, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9,</td>
<td>Ö10</td>
<td>Ö10</td>
</tr>
</tbody>
</table>
Table 5 shows that, in the context of Industry 4.0, the variables of communication model, information quality, target audience, content and interaction level are included in the official web pages of the schools according to the development stage of web technology. Public schools are assigned the codes D1, D2,...,D10, while private schools are coded as Ö1, S2,...S10.

Table 5 shows that 74% of public high schools use the Web 1.0 platform and 26% use the Web 2.0 platform, based on their web profile percentages. Industry 4.0 is associated with changes and different paradigms in education, characterised by high-level thinking skills. This approach necessitates methods that emphasise the importance of thinking, not just knowing. According to Nar (2017), educational paradigms will shift in this direction, and Öztemel (2018) and Durmuş (2019) predicted similar changes. This statement does not convey any meaningful information and may be removed. According to Aslan (2007), 74% of public high schools have a website based on web 1.0, which corresponds to the years 1990-2000 and suggests a lag in keeping up with current technology. Öztemel (2018), Eldem (2017), and Akçin (2020) have identified the main components of Industry 4.0 as autonomous robots, intelligent information networks, system integration, cyber-physical systems, cyber security systems, the internet of things, big data analysis, cloud computing, and simulation. It has been stated that technologies like augmented reality correspond to the Semantic Web of Web 3.0, which was emphasized in the development of web technologies between 2010 and 2020 (Aslan, 2007; Nova, 2011). Considering the features specified in Web 3.0 (Textinart, 2012; Akt.Yengin, 2015: 49), it could be suggested that state high schools' preparation for Industry 4.0 has not demonstrated adequate development in terms of web profiles.
Looking at the number of public high schools that are based on Web 2.0, we see that 26% of them take place. It appears that sites with Web 2.0 features have a higher level of user interaction. Web 2.0 sites are more user-centric, with an emphasis on user freedom and ease of use (Ata, 2011; Aslan, 2007). According to Hayes (2006), the Web 2.0 movement that occurred between 2000-2010 led to a transition from one-way to two-way communication, and from text-based content to sharing-oriented social media content. Thus, the presence of Web 2.0 technologies in certain public high schools suggests that some educators and school administrators are implementing cooperative learning and integrating creative tools such as social media sharing. The official article published in (MEB, 2019) indicates that public high schools will change their policy regarding social media accounts and become more active on these platforms. This is expected to have an impact on the site's usage and management.

Table 5 shows the percentages of private high schools' web profiles, with 66% on Web 1.0 platforms, 32% on Web 2.0 platforms, and only 2% on Web 3.0 platforms. Ünsal and Çetin (2019) state that private high schools are more technologically integrated, providing students and parents with opportunities to participate in learning environments, while technological development in public schools' education processes is more restricted compared to private schools. Therefore, the findings that private schools' web 1.0 profile percentage (66%) is lower than public schools' web 1.0 profile percentage (74%) support the idea that private schools show a greater inclination towards technology. In addition, the inactivity of some private schools on the web 1.0 platform can also contribute to this. It is worth noting that the web 3.0 platform includes 2% of private high schools. According to the Education 3.0 paradigm (Semerci, Yavuz, & Semerci, 2018; Demartini & Benussi, 2017; Harkins, 2008), technology is ubiquitous and not confined to the school premises. It is encouraging that private high schools with limited access to the web 3.0 platform have the opportunity to use mobile applications and evolve into digital schools. Existing literature suggests that public schools are in a disadvantaged position in terms of technological development and infrastructure compared to private schools, as Gürler (2020) highlights economic reasons for this; moreover, Uygun (2003) argues that private schools' expenses are not covered by the state budget. The study suggests that economic adequacy and flexibility could be one of the underlying reasons for the observed differences in web profiles between public and private high schools.
The study suggests that economic adequacy and flexibility might be one of the contributing factors to the differences in web profiles between public and private high schools. According to the Ministry of National Education's 'School Websites Directive' (05.06.2018, no. 76884643-20-E.10943576), public schools associated with the Ministry and schools using the k12 domain name must abide by specific standards when creating websites. Table 3 of the study shows that private schools are more flexible when it comes to using their own domain names for their websites, indicating a higher degree of flexibility compared to public high schools.

**Conclusion and Recommendations**

Following the stages of web technology development in the context of Industry 4.0, we analysed the official websites of private and public high schools affiliated with the Ministry of National Education. We accessed data on their state of preparation for Industry 4.0. The results are presented below.

Based on the descriptive data of the official websites we accessed, we observed that 9 out of 10 schools meet a certain standard for their teacher and student information, communication types, and the active status of their internet addresses required to access the desired data. We noticed that none of the public high schools included social media information in the communication section. It has been observed that all public high schools use K12 as their domain name and have internet addresses specific to the high school level.

As per the descriptive data on private high school websites, teacher information was inaccessible in one school while student information was not accessible in any school. In terms of contact information, all schools, except two, could be found through Google Maps. One school lacked phone information, while four schools did not provide readily accessible e-mail information. Only two schools included social media information in their contact details. It was observed that internet addresses are specific to the high school level in three of the private high schools, whereas a mixed campus system exists in two of the schools. It was observed that three schools use the K12 extension in domain name usage, and four schools have private websites with .com extensions.
In the context of Industry 4.0, when the communication model, information quality, target audience, content, interaction level variables are on the official web pages of schools in line with the development stages of web technology. When we look at the web profile percentages of public high schools, 74% of public high schools are on the Web 1.0 platform, and 26% are on the Web 2.0 platform. No public high school could be found on the Web 3.0 platform. When reviewing the web profile percentages of private high schools, it is apparent that 66% are using the Web 1.0 platform, 32% are using the Web 2.0 platform, and only 2% are using the Web 3.0 platform.

When evaluating the readiness of private and public schools for Industry 4.0 based on their web profiles, it is evident that most of them are still in the Web 1.0 phase. Although changes in the education system tend to happen at a slow pace, applications like augmented reality, virtual reality simulations, internet of things, digital learning platforms, and educational data mining, which are associated with the Education 4.0 paradigm, are partially included in the objectives of the 2023 MEB Vision document. However, schools have yet to fully integrate these technologies in their web pages, that form part of their institutional identity. It is noticed that schools have not yet established the use of these technologies on their webpages, which are vital components of their institutional identities. It is advisable to increase the frequency of blogs and wikis, which belong to web 2.0 communication applications, and provide the necessary infrastructure for their usage, particularly in the teaching and learning process involving students, teachers, parents, and schools. It is believed that the educational information network model incorporating Artificial Intelligence applications such as EBA, which has gained significant popularity during the Covid-19 pandemic, can also be utilised on school websites. This, in turn, is expected to facilitate and accelerate the adaptation of schools to newer technological advancements. Recent incentives provided by the Ministry of National Education (MEB, 2019) to encourage schools to use social media platforms are instrumental in enhancing the corporate identity and promotion of schools, thus rendering them compatible with the digital transformation process. Therefore, it is recommended to expand the usage of such platforms, overcome bureaucratic obstacles and introduce flexible applications utilized in private schools to public schools. It can be inferred that private schools would benefit from having a management panel in place to regulate website content. In this regard, it is recommended that the "School Web Site Management Panel" system (MEB, 2012), currently
being used in public high schools to monitor web content, should be implemented in private schools to address any issues relating to lack of web content regulation.

References


