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Data Storytelling and Digital Visualization

Introduction

The competitive nature of modern marketing urges businesses to take vigorous actions within a data-based approach. In such a market environment, communicating emotionally with consumers has become insufficient. Instead, companies are seeking ways to turn real data and information into value through emotional links that would attract consumers. In this context, data storytelling offers businesses a storytelling model with substantial communicative value. In the digital age, brands give priority to share a visual story rather than providing raw statistical data to stakeholders in their communication efforts conducted both online and in traditional media. Thus, enterprises acting with a value-based approach have been in search of establishing emotional bonds in the light of causal data with their target groups. Companies working within this point of view have been in search of creating emotional relationships with their target groups through the causal data.

Transforming data into a story usually means communicating data visually through infographics, video, animation, flowcharts, and written content to perform much more effective communication. Accordingly, data storytelling is intelligible as a set of efforts that cover the processes of collecting data and visualizing it in a narrative approach (Seçkin, 2019). When businesses acquire data and undergo statistical analysis, they can gain essential insights relating to consumers and the market environment. However, data tables, statistics, and explanations may not be a satisfactory action to carry out the communication efforts of these informative results. Under these circumstances, visualization efforts are being used to achieve an aesthetic value, increasing accessibility and clarity of data. In the next step, the visual data with narrative elements are presented with imagery characters and causal plots. Hence, the mass of statistics which only the experts can interpret in the beginning becomes a communicative message that all stakeholders can share universally through a story-based understanding. When raw data becomes a story, this prominent step enables consumers to get an idea of what is happening. Therefore, the storytelling of data provides new scopes for businesses to conduct practical communication efforts within all kinds of media.

This study discusses the concept of data storytelling as a practical and inspiring communication approach for the marketing discipline and exemplifies it with

various efforts by our national brands. In this context, the study will likely be inspiring the profit-oriented businesses as well as public and non-governmental organizations to increase the communication value of data they already have.

1 Storytelling from Ancient Times to Modern Age

People have made all the realities, experiences, and expectations of their lives meaningful in the stories and conveyed these issues within the narratives at the center of the need for communication. The human being who discovered that the stories were useful tools of expression transferred his experiences from the cave walls to the clay tablets throughout history, and most importantly, they immortalized their thoughts. In this respect, stories constitute a vital type of communication that we use many times in our daily lives as one of the ways of transferring emotions to other people. Therefore, we can talk about the ability of storytelling as the most popular way of having the knowledge and delivering it to others. This situation also shows that stories undertake the role of unifying tissue that makes the facts worth remembering during the interactions among people. From this perspective, storytelling becomes an integral part of human culture and nature by gaining a social meaning. Barkın (2017:26) states that we learn about the victories, defeats, love, and hatred that societies had millions of years ago, from the stories they wrote and drew on the cave walls. That is why "storytelling is one of the distinguishing features between human beings and other living things". The common attribute of these stories in which the events experienced by humanity is their incredible reaching speed and being memorable. It also makes the stories unique that the characters at the center of events become heroes with whom the reader is emotionally connected. Moreover, this situation is not limited to human life, but it is transformed into a unique heritage from generations to generations. This meaning tool of social dynamics has lost nothing of its qualities today in which the knowledge and technology are decisive, but it has also developed its derivatives which keep up with the era. According to Abbott (2008:1), humankind has been telling stories since the first day he started to make meaningful wholes from words; thus, we begin to tell stories when we share an event or situation socially based on chronologically and causality. This continuum emerges as a result of a natural tendency for individual and becomes a distinctive feature offered to use of language. However, this differentiating attribute does not just come from telling stories. It also enables our brains to process information with ease that is a primary task of the mind. As we can see, storytelling represents one of the essential ways of making information sufficient and perceptible.

Hurlburt and Voas (2011: 4) emphasize that the stories scratched to the cave walls in the tribal age evolved into an auditory activity during the development of the language. After centuries, those stories have become legends which indicate the moral values of the first human's culture. The myths, which are generally overdrawn, have been passed on from generation to generation and shaped as narratives that comprise the codes of traditions, superstitions, and life culture since tribal times. Similarly, Barthes (1982: 25) argues that the tradition of telling stories practiced in an unlimited variety of ways in every period of humanity is the oldest course of action. From myths to legends, tales, and novels from tragedies to comedies, many narrative genres are the product of storytelling tradition. Therefore any social formation cannot be considered as lacking a narrative culture. Storytelling, therefore, has an intercultural and international structure, just like life itself. Since it is transmitted from generation to generation in written and audible forms, it naturally leaves behind historical boundaries. This view has a much more meaningful framework for the modern man. The individual, who benefits from the blessings of the digital world, can share almost any information with other people as a personal story. Today, the stories which have a rapid dispersion through technology applications such as social media and Web 2.0 are quite different from the stories written or drawn on cave walls. But the presence of the unifying tissue is still unchanging. Therefore, regardless of the size and type of alteration, it can be arguable that the increasing need for communication and connection in the modern age is satisfied by an unprecedented willingness in human history.

2 Digital Culture and Visual Storytelling

Digital applications coming into our lives with technology have enabled communication visualization and made images, symbols, typography, icons, and drawings to use almost a necessity. This new visualized form of data, which becomes more understandable through the use of graphical representations, has also enabled the simultaneous transfer of storytelling to a new platform. The storytelling that presents a situation or event using plot, place, and characters is defined as an effective means of communication as it can unite the narrator and listeners around common imagery. People set all the facts of their lives in the form of stories, which are the most effective way of presenting and remembering information. Considering the databases expanding day by day, only the storytelling of the data can bring a human perspective to the increasingly complex and rapidly changing world of the digital age (Sanderson, 2016). Besides, storytelling as a means of storing and transferring tool is pervasive with technological

resources based on visualization (Kosara and Mackinlay, 2013:44). The stories, which contain textual and visual structures and constructed through raw data, are one of the most frequently used communication tools in today's companies. Similarly, visual storytelling performs this activity – either static or dynamic – in the digital era for the same purpose (Zhao et al., 2015:2). With the technology revolution, there is an increasing acceleration in the use of digital tools. Digital cameras, mobile phones, and personal computers are some of the tools used in almost every area. Also, social media and Web 2.0 technologies that come into our lives with internet technologies have enabled almost all users to become storytellers. In this respect, it is possible to define digital storytelling as a form of communication in which data-based information is shared with visual multimedia tools and resources (Robin et al., 2011:3). Describing the story with a visual identity also means the visualization of communication and data transfer. According to Hullman and Diokopulos (2011: 2231), who view this argument through persuasion, digital storytelling is a form of communication that requires the use of digital forms of basic rhetorical tools. In contrast to many rhetorical elements used in verbal language, tropes, metaphors, and other rhetorical figures that can be seen as a visual symbol, a cartoon, or in the form of an infographic undertake the mission of transmitting information and making them memorable. In this context, Ma et al. (2012:17) see visualization as a major communication approach that harmonizes the daily practices of scientists. They emphasize that the visualization is employed for the purposes such as clarifying the experimental findings, sharing them in the form of data sets, and presenting them chronologically on a story axis, thus can be transformed into a functional communication device if used correctly and effectively. With this respect, presenting data in a visual structure through digital technologies is principal to make the raw data into meaningful information. Moreover, visualization is intuitive so that it does not require to comprehend complex statistical algorithms or parameters (Keim, 2002:1). Knaflic (2015: 8) states that it is an ability to elucidate the data itself and that this qualification has become much more meaningful nowadays, as data-based decision-making processes are on the rise. The refinement of the data in effective visual integrity is also the key factor to achieve success in communicating the findings. Thus, it enables the ways to provide maximum returns to the enterprises within the scope of their activities. That's the reason for success, which depends on the performance of the business as well as to perform an effective communication with target audience aiming the presentation of the data.

3 Visual Form of Data Storytelling

Storytelling strategies can vary according to the media type. Unlike a film or advertisement, the use of some fundamental mechanisms such as the flow of mind, character analyses, and depictions in the narratives written in a manuscript become a necessary part of it (Segel and Heer, 2010:1139). Professions that often use technological tools to communicate with their target audience, such as artists, designers, psychologists, and communicators, have now explored the potential of digital visual media to create a narrative experience. In this context, they have developed highly effective methods to attract the interests of the users and lead them in the desired way. According to Lee et al. (2015:84), it is seen as a new communication opportunity in recent years that the compelling and intriguing stories based on data can be explained with the help of visual tools. Lee and his colleagues (2015: 84) view the storytelling of compelling and interesting data-based information with the help of visual tools as a new communication opportunity in recent years. Hence, data visualization can be considered both as a basic design element that constitutes a story and as an effective way of telling it. In this respect, it seems that technological adaptations such as videos, interactive graphics, flowcharts, digital maps, and infographics are some of the tools used by the business organizations in the context of data-based storytelling (Amini et al., 2015:3). Almost every sort of graphics presented online has a story design. The use of these instruments aims to provide information in a direct, understandable, and effective manner (Boy et al., 2015:1449). These techniques utilize the ability of visualization to present the main idea surprisingly. Furthermore, it is aimed to bring the target audience together with compelling content and data set effectively in an entertaining way. Segel and Heer (2010:1140) state that data stories differ significantly from traditional storytelling. According to them, the stories we read or watch in a movie are typically based on the continuity of a plot in a causal plane. However, while the relationships between the visualized data can be arranged in a linear order, the users become engaged to question and ask for alternate explanations.

Data storytelling can be defined as the presentation of information by using compression or abbreviation techniques. The main goal is to make data as visual as possible so that the recipient can focus on the most crucial point in the message. It should have both a visual framework and structural story elements based on presenting data on digital platforms in the most intelligible form (Echeverria et al., 2018:3). In this sense, data storytelling is the communication of massive data by transforming them into meaningful stories (Adegboyega and Heravi, 2018:696). Lee et al. (2015:85) state that the principle of visual data storytelling

is a three-stage process in which information is produced, narrated, and told. According to them, the creation of the first stage requires the use of statistical analysis during the experimental process. In this context, it becomes likely to interpret the data by filtering and classifying, therefore, making them meaningful. In the storytelling phase, the aim is to get fluent and intelligible information by creating a plot or repeating sections that are compatible with the data. At this stage, the data is arranged in the order of importance; relations among the departments are developed so that the data becomes consistent with the general framework of the message. Finally, it is aimed to make a presentation during the telling phase by using useful visual tools and platforms to receive interactive feedback.

Data storytelling often requires the use of visualization techniques to support a written or oral narrative (Ren et al., 2017:2). Such a narrative approach is defined as narrative visualization. Besides, the use of visual elements such as text and graphical annotations is among the most prominent features of data storytelling (Segel and Heer, 2010:1140). Similarly, Lee and colleagues (2013:2417) emphasize the message attributes in the story, saying that users experience an analytical process in which they can perceive the message with the help of visual elements. The textual annotations with visual techniques such as graphs, flowcharts, and infographics make the data more comprehensive. Accordingly, visual data stories can arise in several contexts (Lee et al., 2015: 85–88):

- A visual data story includes a series of events supported by data and containing facts (stages describing changes in energy consumption over the years, etc.).
- The elements that constitute the story (data, event, change, time) are visualized to support the message. Visualization requires the use of narrative as well as annotations to clarify, emphasize, and prevent ambiguity.
- The story elements are presented in a meaningful order or within a link among them to support the communication goal. This procedure is used for purposes ranging from educating or entertaining audiences by showing the facts to convince them with exciting sights.

As can be seen, the use of visual data as a means of communication tool appears as an adapted approach to compelling storytelling. The importance of visual narrative techniques has started to increase due to the rapid spread of infographic usage and the development of fields such as data journalism (Amini et al., 2015:3). Hullman and Diakoplous (2011:2235) state that visualizing data is a visual formatting effort to improve the transmission and perception efficiency of data in a communicative context. Data storytelling, which takes advantage of almost all kinds of rhetorical techniques, just like in a written or verbal story,

makes it easier to make user-centered metering with the possibilities of interaction as well as conveying the message to the target audience.

As a way of presenting data most reasonably, stories offer important opportunities as a means of an integrated communication approach that provides an active and experiential process. Visual data stories serve as a functional device on the point where complex data becomes information (Kosara and Mackinlay, 2013:50). Therefore, the presentation of data in the form of visual integrity is significantly influenced by the need to gain meaning and insight into complex scientific data sets. However, it would be appropriate to state that data-based visual storytelling is built on the inferences obtained from the raw data stacks of the researches separately and independently.

4 Basics of Data Storytelling

On the other hand, the fact that the pages of the raw data belong to organizations had a completely different meaning from the daily practices of the consumers, and the fact that the experts could only solve this meaning led the institutions to search for new solutions. In this direction, institutions are transforming data obtained during different processes into strong stories with the help of visual tools and transfer them to their stakeholders. Noting that even the tabulated data only answers the question of "What's going on?" but cannot answer the question "Why?". Sanderson (2016) states that business can overcome this problem with data-centric storytelling. Thus, enterprises take the most critical step in transforming their data centers into a profit center where all stakeholders can access the data presented in a suitable language and format. In this context, data storytelling provides a methodology for communicating information to a particular stakeholder audience with an engaging narrative. Therefore, it is the last and undisputed most crucial part of the data processing continuum. The data storytelling process brings together three key areas of expertise. (1) Data science is an interdisciplinary field of expertise that acquires knowledge and insights and makes them accessible. Data-driven analysis plays a significant role in the realm of substantial changes in our daily lives, such as social media and consumption, where we spend much of our time in modern times. (2) Digital visualization techniques such as graphs, tabulation methods, and visual maps provide solutions to help us understand a large amount of data collected. Converting data to graphics makes them more intelligible and meaningful, but they can also have some limitations. Although at first glance, they can clarify what happened to an extent, they lack the essential context to explain their reasons. Narrativity (3), the last and most vital component of data storytelling, provides a solution to this

fundamental problem (Sanderson, 2016). Narratives reinforce our perceptions of messages delivered to us by using language in a way that suits our wants from the data. Therefore, given that the data and its visual description provide essential evidence, narratives play a key role in conveying these ideas.

On the other hand, the increasing prevalence of trust and dependence on data has led enterprises to look for talented employees. A report by LinkedIn in 2016 indicates remarkable insights. The report says data analysis and related working fields have become the warmest professional careers in recent years. LinkedIn has reported that the only occupation category which takes part consistently in the top four is related to data analysis and its communication (Dykes, 2016). Google Chief Economist Hal Varian (2009) states that data management, which means understanding, processing, visualizing, creating value and communicating data from it, is an essential skill that will mark the coming years, not only at the professional level but also at a young age during the college education. According to him, to understand and produce meaning in the masses of data that we can have everywhere today should be considered as a priceless talent. The fact that occupations in the data management category are widely sought by the enterprises supports this opinion. In an article published in the *Harvard Business Review*, a similar point was pointed out, and it was stated that the most critical step throughout managing big data is communication processes related to data-based information (Anderson, 2018). The article emphasizes the necessity of touching communication approach rather than experience with statistical models. It is among the professions that gain importance in the future by telling visual stories showing the insights obtained from the data and making the basic algorithms meaningful as it can convey complex results to non-technical stakeholders.

Data storytelling can be seen as a difficult task for businesses, but the fact that data-based decisions and activities turn into a necessity has an increasing significance day by day. In this context, telling the data with stories enables the organization to become successful, particularly on digital platforms (Martin, 2018). The concept of data-based storytelling associated with many applications such as data visualizations, analytical reporting, dashboards, and data presentations are interpreted as simply visualizing data effectively, but it is more than creating visually appealing PowerPoint presentations. In this respect, it is likely to tell that data storytelling combines two opposite poles, such as raw data and communication task (French, 2018). Data storytelling is a structured approach to communicate data-centered insights. In addition to that, this approach involves a combination of three essential elements: data, visuals, and narrative (Fig. 1). It is necessary to figure out how these different elements work together in data

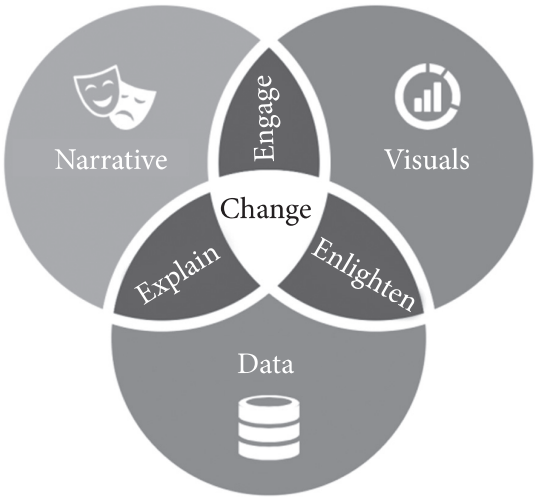

Fig. 1: Components of Data Storytelling. Source: Dykes, 2016, https://www.forbes.com

storytelling. Initially, combining the narrative with data helps businesses explain what the data is about and why the insight is essential. A complete realization of insight is up to a broad context and interpretation capacity. In this respect, when visuals are applied to the data, insights that cannot be noticed without graphs can be understood more clearly. Many interesting patterns and outliers in the data are latent in rows and columns of tables without the help of data visualizations. When the narrative and the visuals are brought together, the consumer can be immersed in an experience of fun and emotional flow (Dykes, 2015:301). Therefore, as a requirement of an innovative management approach for modern and sharing businesses, as a result of combining the data with the right visuals and stories, a compelling data story can arise.

4.1 Principles of Data Storytelling

Segel and Heer (2010:1142) emphasize that data-based storytelling can be critical to clearly understand the data sources intuitively and rapidly, and state that visualization technologies have a prominent communication advantage by incorporating visualization technologies into storytelling design. Tufte (1998:146) argues that this advantage arises from the ability of visualization that has graphical excellence, to transfer data clearly and effectively. Similarly, Ryan (2016:221) states that the aim at this point is to "convey the key message clearly and effectively", by emphasizing the context and meaning obtained through visual enhancements. Echeverria et al. (2018:132) state that visualizations are designed to explore and explain insights, but data stories focus only on the latter. Therefore, data stories aim "to explain what is happening in the data and why

this characteristic is important". As having the feature of which convey a significant argument based on evidence, data stories become one of the most powerful communication tools for brands. French (2018) underlines that businesses need an original story idea to differentiate from their competitors and that the data are exciting factors that reveal these stories. According to him, this provides the opportunity to transform the data available to the business into a unique communication tool. Pica (2018) states that visual data is a way of communicating predictions fast, precise, and accurate in story format, which gives people the capacity to understand phenomena intuitively, and he emphasizes that four critical objectives have been attained in presentation-based interaction in this process. These aims are to inform, activate, revive, and communicate the value obtained. Accordingly, the features that enable data storytelling, which makes visual data understandable, to work as a functional device in today's business structures can be summarized under two headings:

Goal Orientation: Data visualization should be implemented to enable the target audience to understand the data (Echeverria et al., 2018:132). Therefore, filtering data in the visual design stage and refining it in terms of the communication process will make it easier for users to understand the results provided. At this point, a design application with a high potential to transmit data can invite users to comment on predictions and increase interest in business processes.

User-Oriented: Data should, above all, be used to show key points and help revive a story. For this purpose, it requires the use of many elements such as tables, charts, graphs, visuals, statistics, and interactions (Radcliffe, 2017). The semantic value obtained from each of these tools may vary depending on the story and the basic data. Besides, data storytelling focuses on developing appeals that maximize the interests of users or visitors. Therefore, design and expression elements should be used together to create meaning within the visual section. Text blocks can also be used to clearly illustrate how to interpret visual elements (Echeverria et al., 2018:133). On the other hand, data stories that focus on visual design elements such as graphs and tables are a combination of flowing data visuals with explanatory texts. In this regard, the use of text can be substantial in terms of adjusting the degree of data presented, creating a context for them, and adding detail to the data story. Also, Dietz (2017) states that the best data storytellers use metaphors to induce the mental capacity of the audience with the power of figurative language. Besides, making use of personal anecdotes as a rhetorical complement will also allow the development of a sincere language by moving away from business-type jargon. Thus, this practice becomes functional as a formal narrative that allows listeners to experience an emotional as well as analytical and mental experience at the center of data-driven inferences.

5 Types of Data Storytelling

It is possible to express that visual storytelling based on data brings together two important issues that are frequently discussed today. The first one is data science, which has been dealt with at a strategic level within the scope of business activities in recent years, and the other is the concept of storytelling which is used as a practical tool within the framework of marketing communication. As a channel that transmits data which has gained meaning through analytical processes, storytelling is used as a way to effectively convey a difficult subject to the target audience. At this point, it would be appropriate to state that the storytelling became ambiguous in terms of the structural elements (plot, character, place, time), transformed into a digital face and conveyed the information in a warm and intimate tone with the help of visual tools. Therefore, data storytelling can be defined as communicating the data in a more intelligible and engaging format with the help of visualizations. In this regard, all kinds of visual narrative forms such as advertisements designed by brands based on data, visual narratives presented on websites related to sustainability efforts, data-based content and videos shared on digital platforms, and historical charts where corporate information are told can be considered among data storytelling types. Even so, there is a limited number of classification studies on data visualization and storytelling in the academic literature. Nevertheless, the current studies can explain the phenomenon in general terms. The first of these publications is the result of a content analysis of 58 visual narratives by Segel and Heer (2010). Thus, the researchers took the first step in defining a type of storytelling in which data was visualized and transmitted. They concluded that the concept of data storytelling could be categorized into seven basic types as a result of their approach in their studies. These seven types emerged by the investigation of visual and narrative components of storytelling based on data are as follows: news style, annotated graphics, segmented posters, flowcharts, comics, slideshows, and movies/videos/animation. However, according to the researchers, these species should not be considered as independent of each other but rather as designs that are compatible to come together to generate more complicated but engaging visual forms. In the following section, the types of visual storytelling included in this classification are explained with examples.

5.1 Magazine Style Data Storytelling

It is the presentation of data visuals with explanations placed in a flowing text in accordance with the journal type of media. In this static type of data storytelling, which is widely used, there is a transition of a single frame (Segel and

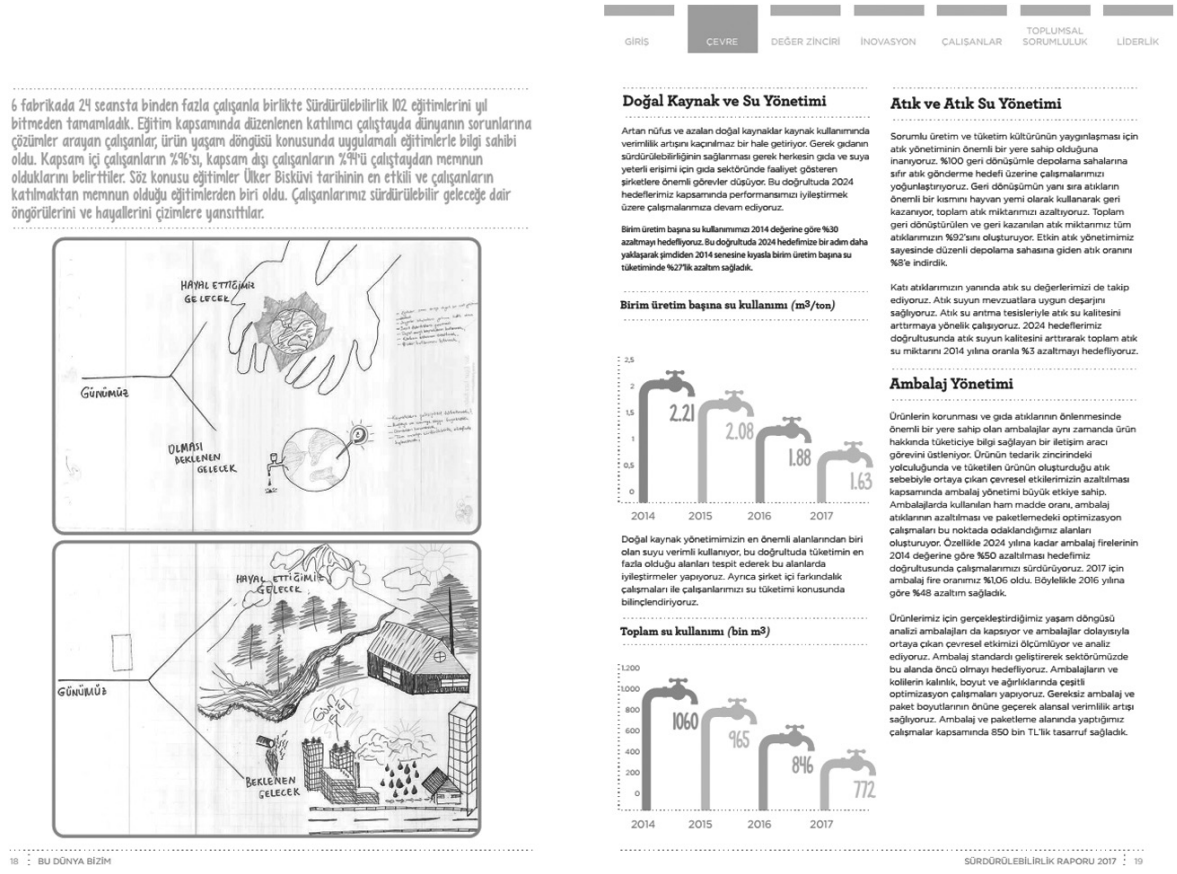

Fig. 2: Ulker's Environmental Sustainability Report. Source: http://www.surdurulebilirlik.ulker.com.tr/

Heer, 2010:1147). Businesses often present key points in their data with a visual presentation and annotations. A text and visual sequence that will facilitate understanding of data-based predictions and results such as social responsibility projects, market research, turnover and profit information, and new investment projects are shared with the target audience in the form of magazine design. Readers can also reach articles line by line and interact with linked sections to access related visualizations. This avoids additional cognitive effort (searching for interactive links, matching data and descriptions, etc.) for users who strive to make the message meaningful. However, according to Kwon et al. (2014: 5), traditional magazine-style articles are beneficial for these purposes; they are often limited to providing contextual information within simple prose. Ülker –international food company based in Turkey – has a method of sharing digital data on corporate social responsibility projects and incorporates a magazine-format approach (Fig. 2). Within the scope of its sustainability efforts for the environment, Ulker reduced its water consumption by 24 % on a unit production basis and went on to explain its success with visuals and texts. In this context,

while there is a place cursor in the upper block of the design that emphasizes the topic examined, readers are also informed about the other topics. Similarly, Sabancı Holding preferred to convey its banking sector activities in the text block with an annotated table and graph, in particular, the tables where the numerical data related to the sector have been enriched and made meaningful with the information containing general explanations by visualizing all of them (Fig. 3).

5.2 Annotated Charts

These are visual tools that are created by enriching and making sense of the data represented by graphs with footnotes and description boxes. In this context, comment boxes or footnotes serve as message points that provide users with more background information about a particular set of data. Stolper et al. (2016:12) stated that explanations have a significant role as narrator's representative in data-based storytelling and emphasized three features of the annotations as follows: content (text, symbol, etc.), location, and timing (the description should appear and disappear if requested). However, with unlimited freedom for users to evaluate data, there is also the risk that disclosures may be inconsistent, irrelevant, or confusing. For instance, if the visitor no longer displays annotations when he zooms or filters the data group in which the footnote is contained, this may cause inconsistency with the logic of the visualization. However, companies may want to add value to the presentation with additional explanations when interactive actions are performed such as selecting and filtering or zooming a data group. In this case, the descriptive text is expected to work under an interactive visual arrangement.

Similarly, Ren et al. (2017:230) stated that explanations play an essential role in conveying key points in visual data-driven storytelling, and that footnote boxes, which are either static or dynamic, help presenters to explain and emphasize the underlying messages consisting of data. In addition to helping clarify important messages or data, annotations allow viewers to focus and concentrate on specific parts of the graphs (Lee et al., 2013:2417). Also, appropriately placed annotation boxes potentially make data easier to store and produce aesthetic appeal by generating more context (Borkin et al., 2013:2307).

On the other hand, creating a data-driven story developed with tags and explanations and enabling users to interact reduces the risk of noise associated with the visualization of the message and thus increases intelligibility. Thus, reliability and participation due to interactive visualization are established in storytelling (Ma et al., 2012:18). Hullman and Diakopoulos (2011:2233) consider explanation techniques as one of the four editorial layers of data storytelling as

AKBANK

Akbank Türkiye'de öncüsü olduğu dijital bankacılık çalışmalarını Akbank Direkt çatısı altında toplayarak, en uygun noktalarda ve mükemmel müşteri deneyimiyle hizmet sunmaktadır.

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* 2018 yılı kredi tutarı TFRS 9 standardına göre belirtilmektedir.

Akbank, 30 Ocak 1948 tarihinde özel sermayeli bir ticaret bankası statüsünde Adana'da kurulmuştur. Kuruluş amacı bölgedeki pamuk üreticilerine finansman sağlamak olan Akbank, ilk İstanbul şubesini, 14 Temmuz 1950'de Sirkeci'de açmıştır. 1954 yılında Genel Müdürlüğü'nün İstanbul'a taşınmasının ardından şube sayısını hızla artıran Akbank, 1963 yılında tüm bankacılık işlemlerinde otomasyona geçmiştir.

Akbank, 1990 yılında halka açılmış ve 1998 yılında ikincil halka arz ile uluslararası piyasalarda American Depository Receipt (ADR) olarak da işlem görmeye başlamıştır.

Akbank'ın temel faaliyetleri, kurumsal ve yatırım bankacılığı, ticari bankacılık, KOBİ bankacılığı, bireysel bankacılık, ödeme sistemleri, hazine işlemleri, uluslararası bankacılık ve özel bankacılık hizmetlerini içeren bankacılık faaliyetlerini kapsamaktadır. Banka, standart bankacılık faaliyetlerinin yanı sıra, şubeleri aracılığıyla, Aksigorta A.Ş. ve Avivasa Emeklilik ve Hayat A.Ş. adına sigorta acenteliği faaliyetlerini de yürütmektedir.

Faaliyetlerini İstanbul'daki Genel Müdürlüğü ve yurt çapındaki 21 bölge müdürlüğü aracılığıyla sürdüren Akbank, yurt içinde 780 şubesi ve yaklaşık 14 bin çalışanıyla güçlü ve yaygın bir dağıtım ağına sahiptir. Akbank 17 milyonun üzerindeki müşterisine hizmetlerini, geleneksel dağıtım kanalları olan şubelerin dışında, Akbank Direkt İnternet, Akbank Direkt Mobil, Çağrı Merkezi, yaklaşık 4.900 ATM, 580 binden fazla POS terminali ve diğer yüksek teknoloji kanalları aracılığıyla sunmaktadır.

Mobilin bankası Akbank

Akbank Türkiye'de öncüsü olduğu dijital bankacılık çalışmalarını Akbank Direkt çatısı altında toplayarak, müşterilerinin finansal ihtiyaçlarına çözüm sağlamakta, en uygun noktalarda ve mükemmel müşteri deneyimiyle hizmet sunmaktadır. Teknolojinin hızla geliştiği ve müşterilerin taleplerinin daha da arttığı günümüz koşullarında Akbank Direkt, müşterilerin ihtiyaçlarını zaman ve mekân sınırlaması olmadan karşılayarak aynı zamanda yeni teknolojilerin sektöre ve Türkiye'ye gelmesine de öncülük etmektedir.

Yeniliklerin bankası Akbank

Trendleri ve müşteri dinamiklerindeki değişimleri öngörerek, müşterilerinin finansal ihtiyaçlarına özel yeni ürünler ve kanallar geliştiren Akbank, Türk bankacılık sektöründe birçok yeniliği müşterileriyle buluşturmuştur.

Akbank Veri ve Yaşam Merkezi hayata geçiyor

Akbank Bankacılık Merkezi, 2010 yılında hizmete girmiştir. Akbank'ın verimliliğini ve hizmet kalitesini çok daha yüksek seviyelere taşıyan Merkez, en yüksek teknolojiyle donatılmıştır. 2017 yılında temeli atılan ve yatırımı 2018 yılı boyunca süren "Akbank Veri ve Yaşam Merkezi"nin 2019 yılı içinde tamamlanarak hizmete girmesi beklenmektedir. Akbank'ın tüm teknolojik altyapısının kalbini

Fig. 3: Sabancı Holding Annual Report. Source: https://yatirimciiliskileri.sabanci.com/tr/faaliyet-raporlari

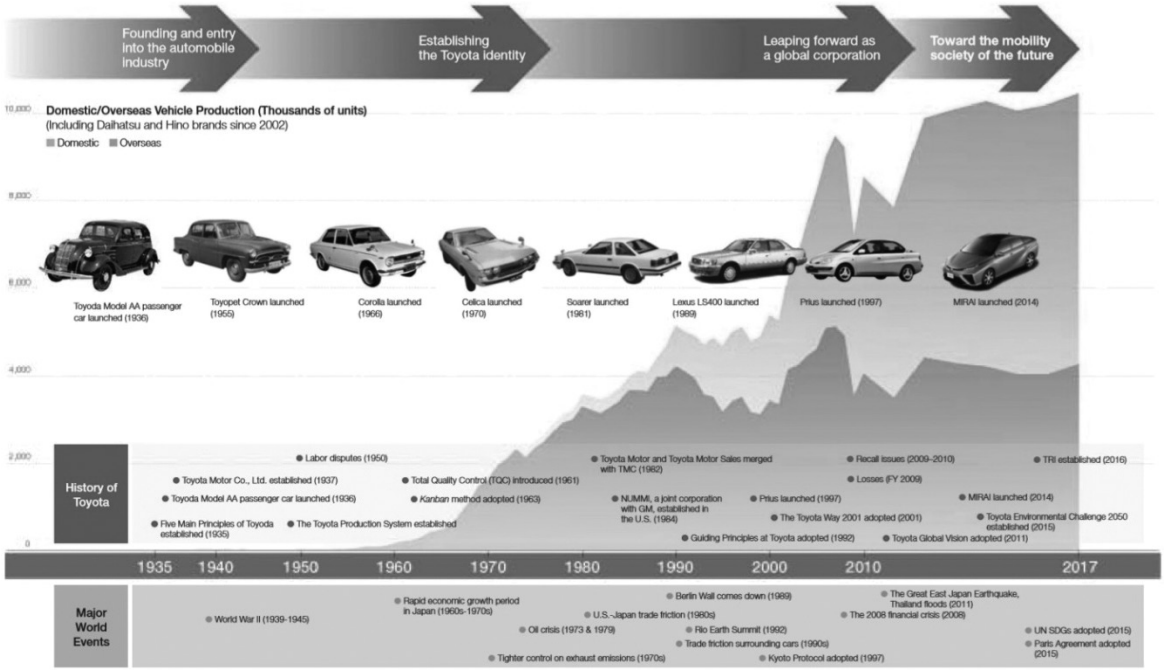

Fig. 4: Toyota's Historical Chart. Source: https://global.toyota/en/company/trajectory-of-toyota/history/

well as visual presentation, data set, and interaction. In this case, the description fields which consist of labels, pointers, dynamic texts, diagrams, and other visual symbols are of great importance in terms of positioning a data in the minds of users by gaining a message character.

Data stories consist of different data visualization techniques, combined with historical graphs and explanations in particular. Toyota Global, for example, aims to create a richer user experience by utilizing the descriptions and visuals in the graphics to support the story of its historical background (Fig. 4). In this context, the visual history visualization presented on the brand's website enables visitors to examine and compare the data. Besides, users are enabled to use interfaces that allow them to filter and focus on any point on the historical graphs, thereby enhancing interaction. Among this process, users read the story of the brand in detail in the description boxes and become a part of this experience. Therefore, it can be said that the digital and visual history presented on Toyota's website represents one of the most potent examples of the unique nature of stories that invite users to explore.

5.3 Flowcharts-Infographics

Data flowcharts provide a way to tell a story of a process or system data on a hierarchical plane. Therefore, it ensures general information about the entire

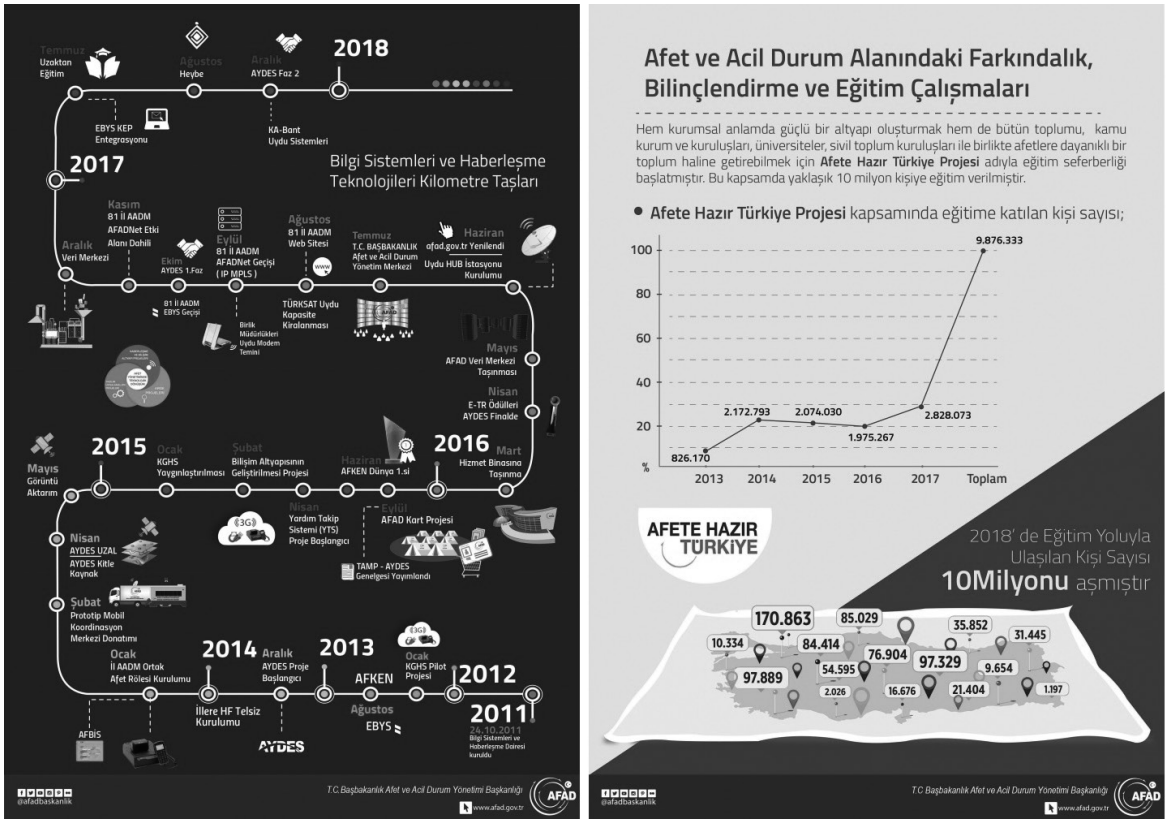

Fig. 5: AFAD Infographic Designs. Source: https://www.afad.gov.tr/tr/13016/Infografik/grafik/27167

processes of the business. Furthermore, specific operations based on data can be easily illustrated by a flow chart. The flowchart enables a schematic presentation by combining the story pieces connected with boxes and arrows. Thus, different ways of generating solutions to any issue are identified. Flowcharts are used to analyze, design, document, or manage processes or programs in various fields (Ren et al., 2017:231). In this context, infographics are used by journalists, computer and data scientists, and statisticians in a broad background to conceptually explain various information.

It is possible to consider that two main factors inspire the communicative power of infographics. Primarily, the relationship between graphical representations and raw data helps users make sense of this connection. The second factor stems from the fact that visual design promises artistic freedom to the data communicator. Thus, it allows the creation of a unique and personalized message graphic in an aesthetic language shared by universally (Lee, 2013:2418).

On the other hand, infographics are visual graphic representations of data or statistics that aim to present the message in a quick, precise, and meaningful way. Typically, it consists of a composition of figures, flowcharts, images,

Fig. 6: Turkcell's Partitioned Poster. Source: https://medya.turkcell.com.tr/infographics/rakamlarla-turkcell-teknoloji-zirvesi-2016/

arrows, and titles. These elements are arranged with a consistent theme, color, layout, and typography. Statistical infographics include numbers and information represented in the form of maps and images. It tells a story on its own as a visual representation of intriguing data and messages. In this context, it is necessary to have a synthesis of graphic design, data visualization, and storytelling skills to design infographics effectively (Underwood, 2017). For example, the Disaster and Emergency Management Presidency (AFAD) reported the research and information processes on information systems and communication technologies with a useful infographic (Fig. 5). The long-term process, associated events, and situations are presented with visualizations, flowcharts, and consistent typography. Thus, AFAD aims to transform the data which can be perceived as tedious and incomprehensible by many of its stakeholders into a story with a hierarchical flow and causal connections and a message with high communicative value.

5.4 Partitioned Poster

Partitioned posters, which are a type of infographics, can have more than one frame to visualize different but related groups of data. Segel and Heer (2010:1142) state that posters with a segmented message network are planned as multiple design frames. Accordingly, the design space is divided into at least two frames and the data is associated with each other. In the partitioned poster, which is used to improve investor relations, Turkcell has combined its performance indicators and the applications it has made available in this process with the profit data it provides to investors (Fig. 6). The information for each category was presented to the visitors in a segmented design and separate frames. Similarly, the Association

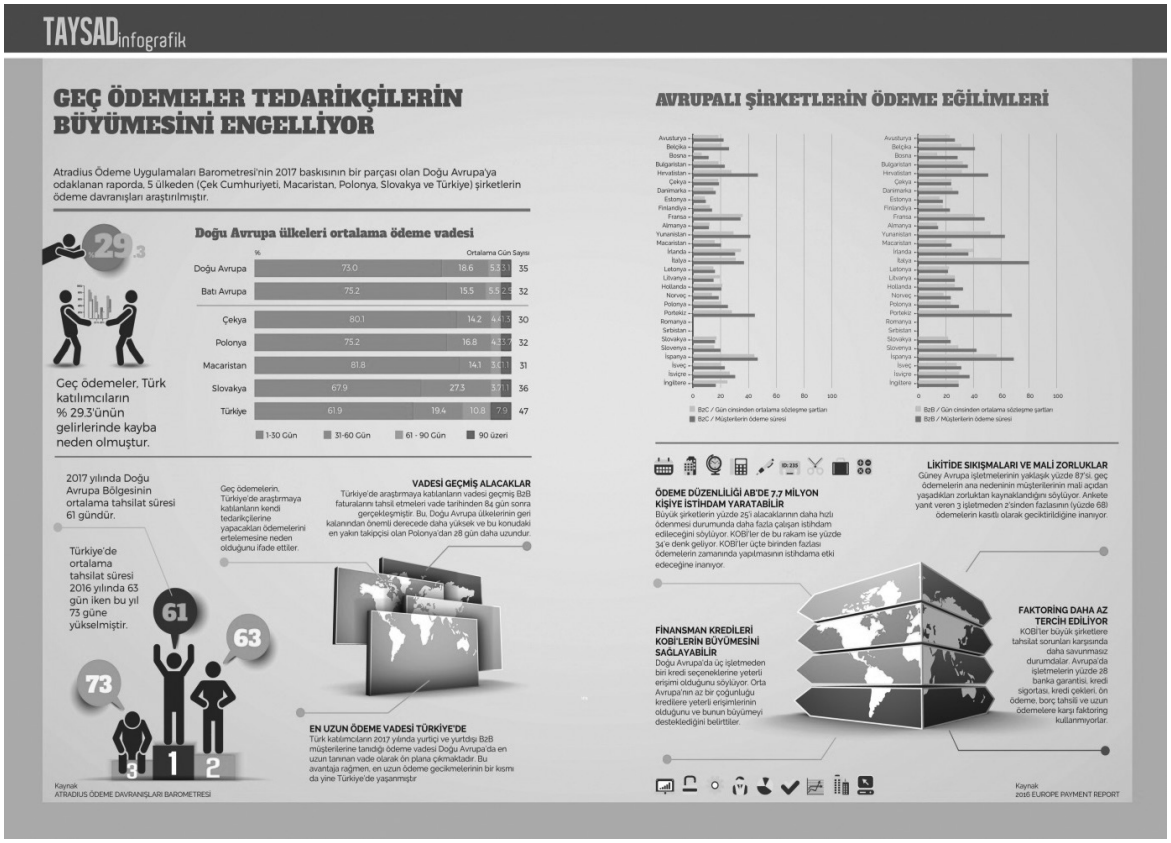

Fig. 7: TAYSAD Partitioned Poster. Source: http://www.taysadmag.com/infografik

of Vehicle Supply Manufacturers (TAYSAD) presented data on payment trends within segmented infographics to consumers (Fig. 7). In the report, data on payment trends and financing loans in many European countries are presented in an infographic format divided into different frameworks and headings.

5.5 Comics, Cartoons, and Animations

Visual media often includes scene passages similar to those between sections of a fictional film or comics panels. The continuity of a coherent message interconnected between the scenes increases the impact of cognitive processes towards the given message (Segel and Heer, 2010: 1140). In this respect, comics represent an indiscriminate yet powerful and intriguing way of telling stories; where pictures, text, visual footnotes, and explanations come together. Sequential art, known as comics produced from data-based visualizations, is used as an innovative method for data-based storytelling. Consequently, cartoons, which are a visual communication tool, can be seen as a popular graphical application used to transfer information to all target groups, especially children and young people (McCloud, 2011).

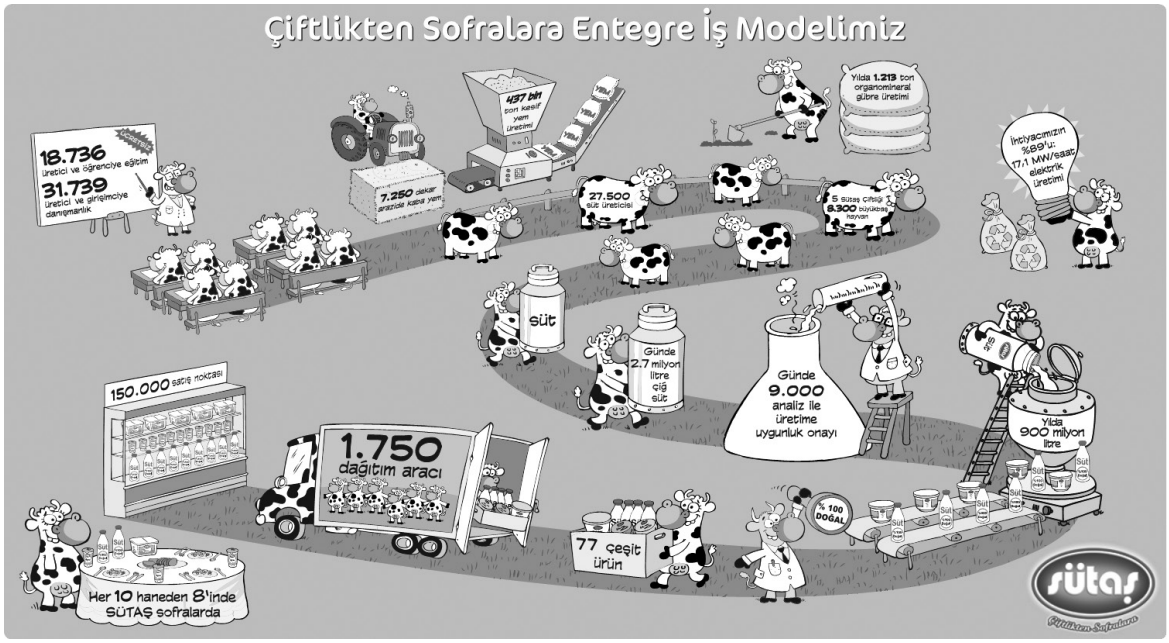

Fig. 8: Sütaş's Cartoon-Format Data Communication. Source: https://www.sutas.com.tr/uploads/images/sutas-surdurulebilirlik-raporu-2017.pdf

Comics enable to create narratives that use cartoon designs of scenes that include both photography and live animations. Data-driven comic reports emerge after arranging a series of humorous panels that contain visual graphic elements. Each frame designed to be consistent with both visual and textual elements is aimed to convey the overall story told in comic books in a hierarchical sequence that gradually develops (Zhao et al., 2015:1).

Sütaş shared the data concerning integrated business model with cartoon graphics in a humorous tone in its report prepared within the scope of sustainability efforts (Fig. 8). The images he used were also cartoon graphics of cows in the brand's corporate identity and advertising efforts; therefore, Sütaş was able to convey a consistent visual data story to its stakeholders.

Visualization represents a practical approach in the communication process of all kinds of data regardless of their quality. Accordingly, one of the data communication methods used by brands is animation videos. According to Sinar (2016), animated films combining a high-quality data set and an engaging issue for the brand's stakeholders can be very efficient in explaining complicated and troublesome concepts and profoundly influencing viewers through an emotional experience. This may be true for data, in particular, indicating the variation between multiple groups and periods. In this way, it is possible to maximize the informative, appealing, and convincing effect obtained as a result of standard and static data visualizations. Similarly, Nakakoji et al. (2001:83) tell that in

Fig. 9: Happiness Cycle Animation Video of Ulker. Source: http://www.surdurulebilirlik.ulker.com.tr/

terms of interpreting data, making comparisons between values, dividing them into smaller components, focusing attention, predicting change, and then giving an idea of what happens next; animations performed better than static graphics and tables.

Today, the race to increase message involvement with appealing visuals continues under more competitive conditions than ever before. Animated and interactive data stories are among the innovative methods used by brands in this relentless struggle. Ulker's animated film "The Cycle of Happiness", which is designed to tell a story that the company provides added value to the environment can be considered as the product of such an approach (Fig. 9). The brand has transformed its achievements into numerical data and conveyed these data with an emotional story within the theme of 'happiness'. Within the story based on the data, Ulker depicted independent heroes struggling between causal spots. Therefore, Ulker has positioned itself as a value-oriented brand that makes significant contributions to the happiness of story heroes and other stakeholders through products and services. Briefly, Ulker's animated film, prepared within the scope of sustainability efforts, shows how productive the role of data communication can play in positioning a brand.

6 Conclusion

Data storytelling is the art of telling a brand story with visualized data. Nowadays, by transforming statistical data into stories, businesses produce a semantic value that attracts and affects consumers. Within this context, the most important tactical activity that makes data valuable for brands is to increase their communicative meaning by placing them in a story. This also turns into a distinctive form of communication that allows consumers to make sense of statistical data and static tables and does not require any expertise.

Statistics and data processing require specialized discipline. Therefore, the opportunity to activate consumers are quite low. However, people rationalize their emotional decisions based on causal facts. In other words, we look for acceptable reasons behind what we feel emotional intimacy. Therefore, it is possible to tell that the idea of transforming the data into a story by visualizing derive from a natural tendency in which emotional and rational processes are used together in decision-making. Thus, it is essential to enrich the communicative value of the data to engage people and make data emotionally sufficient. In a sense, this may also mean the adoption of human characteristics to increase the effectiveness of statistical data and establish an emotional connection.

On the other hand, it may be correct to add a new context to the fact that people now live under a message bombardment. Modern man has been rained with visual knowledge that technological tools bring to life. When we examine almost every kind of message, from television advertisements to illuminated and remarkable media advertisements, it will be seen that the enormous flow of information encompasses human life. The visual representation of all those data traffic makes it possible for consumers to make sense of them. Therefore, data storytelling is a reflection of brands' desire to communicate with their stakeholders both online and traditionally in a market environment where data gains importance. With this approach, brands create the context and communicate correctly to enable consumers to recognize the connections in the emergence of facts or trends.

Today, while many brands have no problems in accessing and analyzing data, they face difficulties in converting it into value. This means that brands are not acquainted with the digital tools that enable data storytelling and visualization, or they do not give any importance to those efforts. However, data-driven marketing which has become a necessity and visual reporting, which increases the communicative value of data, can contribute to the long-term success of brands. The storytelling of data used in a wide range from corporate social responsibility efforts to presenting consumer trends research results, new product strategies,

and pricing policies require a visual reporting approach. In this way, businesses will provide the information they need in the decision-making process as well as making their information accessible and transparent. The invaluable contribution of this effort to the corporate image of the enterprise through the sensitivity and responsibility of creating a data society is beyond anything.

All brands, regardless of their size, can access the necessary tools and information that can use data storytelling. The primary action is to think strategically and make decisions on these processes. At this point, trying to comprehend the importance of storytelling in the process of transforming consumer and market insights obtained from raw data into a visual message with high communicative value will be an approach that increases the motivation of the businesses.

In this study, it is aimed to give examples about how the enterprises whose data need is increasing day by day, transform their data stack into a story with communicative value. Data storytelling, which is a relatively new concept in the academic literature, offers unique opportunities for businesses that meet their stakeholders, especially in communication channels that develop due to digitalization. As practical usage becomes widespread, brands will be able to transform their data into value-driven information that makes sense to consumers.

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