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How infographics can enhance business

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Introduction

Writing has been an important component of humanity's development since the origin of mankind. Writing represents the graphical representation of a language utilizing symbols graven or drawn on a flat support. Nowadays, the art of language is still unfinished and it changes year by year, but when an image summarize the meaning of a particular concept (with symbol or sign), it is deemed more reliable and has the benefit of being understood. For this reason, text and image combinations always provide a good explanation: this is called infographic. Visual components like charts and graph form the graphic information and assist us to comprehend the significance of a text. Visual display of information isn't just a manner of showing what is found. Instead, we can assume it's the method by which information is not only understood but new meaning and knowledge are incorporated into the same material. Through the use of text and visuals, people learn and remember more effectively than through text alone. Complex and dense information is represented by infographics which supports cognitive processing, learning, recognition, and recollection in the future. But the power of information graphics is that they can deliver as much content as possible in the least space while still being accurate and clear; they can be quick to tell a story, show connections and reveal the structure, because they are visual, in comparison to oral or textual presentations.

As the volume of accessible information is constantly growing and the attention span is decreasing, a new form of communication is needed in a commercial context. However, in how humans process data, nothing has essentially changed. First, individuals think in terms of vision.

This thesis aims to understand how this new form of communication has impacted business and their way to do marketing. The paper follows a path that has been divided into three chapters.

In the first part is explained the concept of communication inside the organization and how this has evolved during the years until nowadays. The major communication problems in the information age were taken into account and then concentrated on the problem of loss of concentration from consumers.

Secondly, the thesis reviewed the history and the development of infographics. Afterward, a definition of infographics was given to clarify the subject to be discussed. Then I argued the reasons why the human brain craves for visuals and proposed that infographics are an effective way to present a large amount of information, data, and knowledge.

At the end of the paper, I examined how the popularity of infographics brought both challenges and opportunities for organizations both in internal and external communication analyzing two important marketing concept that uses infographics: *content marketing* and *visual storytelling*.

Chapter I

Let's stop for a second and think about how much information we are exposed to every day as part of our daily activities: newspapers on tablets, emails, TV advertisements, street banners, last-minute holiday notifications, stock market index variations etc. Everyone of us is exposed to big data on daily basis no matter what your job or your social status is, from a CEO of a multinational company to an employee of the local supermarket.

In all of these situations, the central issue is the huge amount of data we have to cope with. Over the last decade, the quantity of information that we all have to process has extremely increase. The quick progression in technology as well as the globalization of economy and communication, have lead us to what some noted authors define *information overload*. This phenomenon is also known as "*the difficulty in knowing a problem and effectively making decisions if you have too much data about it*" (Yang, Chen, Honga, 2003). In any case, what we are going to observe is not an explosion of information but rather an explosion of data, which we are constantly forced to observe, process and remember for our activities.

The information, very helpful and significant for our life, is constructed and elaborated from this continuous and constant data flow that we are subjected directly or indirectly. Therefore, we need efficient techniques that enable us to go through this data and, for instance, help us to make choices. Today, organizations are performing in a highly competitive environment with an acceleration of globalization information, improvement of communication technologies, more complex business structures and management approaches which are changing year by year. Even product lifespan is shortened and customer expectations and needs are continuously growing.

For this reason, businesses have to renew their production technologies, redesign the business process and adapt them to today's conditions (Süreyya, 2019). To be successful in this new context, managers should be able to cope with all these functions simultaneously: from the product's design to the presentation to the customer; it has become impossible for businesses to survive without adapting to these changes.

In the last years, where the organizational context is constantly changing, businesses have started to take into account the concept of "Communication and Marketing". More and more enterprises are producing equal goods with the same price level, technology, and quality and deliver them to consumers with the same channels. In this framework, only businesses which are making the difference with true marketing-communication approaches towards their target groups can be successful. In this sense, companies are questioning their traditional marketing plan, assessing their techniques and objectives and demonstrating greater stake in efficiency, profitability, control, evaluation and *communication* (Süreyya, 2019).

In an era of rigid competition and with a rapidly changing marketplace, marketing communication has become one of the keys points to gain and link with customers. In more simple terms, the central purpose of marketing communication is about using the correct channel to deliver the right message in order to obtain the desired behavior. In this increasingly connected but fractured market, a key challenge is the ability to collect information concerning the effectiveness of the channel and the marketing message. With media becoming more and more interactive, however, the collection is slowly becoming less daunting.

1.1 - Communication: the Voice of the Organization

Individuals, during their whole life, need to communicate with the external environment. It's a necessity that we have since the beginning of our time: as soon as we are born we try to interact with the outside environment by crying or by making gestures and only after having learned to speak we start to communicate using a known language. The same thing happens with a person who doesn't have the ability to speak or has lost it due to an accident: he tries to interact with those around him with another type of communication: the Sign Language.

The *communication* concept is defined as the sociological process of social interaction which allows the exchange of thoughts and emotions thought individuals, inter-communal words, hand movements, writing, images, multimedia content, etc. (Demiray, 2009). It is one of the fundamental elements that forms the basis of the society, a tool that guarantees the natural functioning of the organizational, administrative and operational structure and a method that displays and influences the behavior of individuals.

The etymology of the word "communication" comes from the Latin "communis" which means "to share something". In short, communication is the process to create common points between individuals (Mısırlı, 2008). Communication has a direct connection with human production and we can say that a business is an advanced form of communication with the purpose of generating economic profit. During a business negotiation, the dialogue between the parties is aimed at collecting as much contextual information as possible to make the right decisions and propose solutions.

Organizational communication, therefore, can be described as the process of linking organizational system and ensuring harmony between them. It could be compared, for example, to the blood circulation in living organisms: it brings together all the elements that compose the body. If there is a problem

in organizational communication it is unavoidable that problems will be caused, as well as in a circulatory system. (Mısırlı, 2008).

Without communication it might not be well communicated to the employees which and how a job should be completed. In a nutshell, "*organizations cannot exist without communication*" (Keyton, 2011).

Even the non-communicative functions of the organization (for example the financial system) are enabled by communication (Poole, 2014:). It is necessary for all the management process and it is constant throughout the entire life of the organization: from organizational creation to the hiring of employees, from concept and development of product and services until its sale to the customers. Organization members communicate with each other and with interested parties such as customers, suppliers and regulatory authorities. Therefore, organizational communication fills a wide variety of communication activities across several different types of senders and recipients such as individuals, groups or teams and the organization as a whole.

The organization benefits from communication to ensure quality production processes quickly and effectively, to ensure participation, morale, and motivation. Effective communication leads to the right business structure, consequently to cost reduction and profit increase.

Precisely because it is an information process, it must be as effective and efficient as possible within a company. Moreover, it needs to complete its language through the use of linguistic representations such as diagrams, graphics, images, videos, animations, and infographics where these contents represent the complementary resources to understand a specific circumstance.

Nowadays, communication methods on how to make communication simpler, globalized and multidisciplinary compatible with reality are created with a higher frequency. Through economic development in almost every part of the world, communicators are dealing with more diversified messages: in this environment, individuals increasingly interact directly and indirectly with

interconnected global networks. This means that messages can pass through multiple translations and through different national languages. To have effective communication in such an environment, creators need to learn how to use new technologies and interact with different competing positions in different languages, cultures, and environments (Du-Babcock, 2006).

So what are the primary implications in an overcrowded business world of information? There are three major implications for companies (Birkinshaw, 2014). First, they need to become masters of attention management: ensuring that individuals focus on the correct set of problems and not being distracted by the dozens of similarly exciting issues that could be discussed. As Nobel laureate Herbert Simon pointed out, "*a surplus that creates a deficit of attention*". This is today's scarce resource.

Second, when taking significant choices, organizations need to obtain the correct equilibrium between data and judgment. As Jeff Bezos, Amazon's founder and CEO noted, there are two types of decisions: "*There are decisions that can be made through analysis: these are the best ones. They are based on facts that cancel the hierarchy. Unfortunately, there is another whole series of decisions that you can't sum up in a math issue*". One of Amazon's mark of genuineness, probably, was its ability to make great strike based on judgment and intuition.

Finally, the ubiquity of information means that when sharing is taken into consideration, a cautious balance is needed. Keeping everything secret does not work anymore, but pure transparency also has its risks. Companies need to become more intelligent in understanding which information to share with their employees and what consumer information to keep track of their benefits.

We live in what the authors define as "Information Age": a historic period characterised by the rapid evolution of technology in daily life and with communication processes becoming the driving force of social evolution (Hilbert, 2015). We receive 5 times as much information today as we did in 1986, and the daily media consumption per person correspond to 34 gigabytes (or 100.500 words) (Bohn, 2012). This increase in data flow has also created some problems, directly and indirectly, conditioning the mind of the consumer. Among the main problems we can find:

- **Information pollution** as one of the major causes that affect the decision-making ability of an individual (Pandita, 2014). Some of the major sources of information pollution include Information technology (social media, spam, web), Mobile phones, Online journals, Information explosion, Random information, and Plagiarism;
- **PAPA model** focused on individual's abuse which could arise from the unethical or misuse of information and information technology. PAPA model informs depth knowledge on what the Privacy, Accuracy, Property, and Accuracy means, how they are interrelated, what are their differences and how they help us to reach the conclusion on ethical issues.
- **Attention Span** defined as the amount of time someone spends looking for something, before deciding if he wants more time. This problem will be more accurately analyzed in the next paragraph.

1.1.1 - Attention Span

Attention is clearly an essential element for effective advertising, but the brain's consumer is changing, decreasing the ability for prolonged focus and increasing their appetite for more stimuli.

According to a concept of attention economics of Herbert Simon (1970), he wrote "*The power of data in an information-rich globe implies the dearth of something else: its listener's focus*". By the time Simon understood what was one the problem affecting the mind of the consumer and these days that attention is even more scarce.

Today, no one watches advertisements for more than a few seconds. We're still sitting in front of radio and TV commercials, but most of our material is originated from the internet where, after 5 seconds, we can skip a commercial YouTube video and scroll right past Facebook adv posts. A couple of seconds is not an overestimation: Facebook computer consumers see a part of a post for an estimate of 2,5 seconds; on mobile, the median falls to 1,7 seconds (McCollester, 2019). Attention spans are shortening, and marketers are worried about that.

However, it's still feasible to capture somebody because it requires a couple of seconds to generate an impact. "Measurement Breakthroughs" research from Nielsen reveals that video impression smaller than 2 seconds still have the authority to increase brand awareness, product recall, and purchase purpose. While the focus has shortened, it's not gone away. This presents a significant task for brands: their messages need to be distilled precisely.

How is it we can only hold our attention for few seconds, yet at the same time hold the line for multi-day marathons of "*Game Of Thrones*"? The existence of both behavioral trends means we're missing something fundamental to consumer psychology. That missing link is the role of self-selection or self-imposed psychological filters. They have become highly selective of the content, be it branded or unbranded, to which they devote

their precious attention. While this might mean they pay little attention to the content they filter out, it also means they engage significantly longer with the content they actively let in. The more selective they are, the more receptive they will be to the content they find valuable (Faro, 2017).

In 2015, Microsoft Advertisement UK's department thought it was important to know what impact the nowadays digital lifestyles are having on customers and their focus in the digital era, and what this implies for marketers.

The study analyzed how the structure of our brain changes in response to variation in behavior, environment, neural processing, thinking, emotions, etc. Changes in neural pathways and synapses are due to the everyday experience whether they are learning or dancing, play computer games or singing while playing the piano and this modification impact on cognitive skills like *attention* and *focus*.

One of the most impressive shocks related to this field is the *human attention*: it has markedly decreased in just 15 years: the average human attention span was 12 seconds in 2000; in 2015 it reduces to 8 seconds. In fact, scientists reckon we now have shorter attention spans than a goldfish... it has 9 seconds! People care less than fish.



Figure 1.1: Human Attention Span

Source: Adelphi Research

The cognitive functioning of the brain changes in reaction to regular, intensive use of technology leading to the development of new cognitive skills that are best suited to a more digital lifestyle. The research indicates that in reaction to the use of digital technology our brain is evolving and the outcome is an evolution of attention skills. But technology isn't a threat or a problem for marketers, per se: while it introduces some challenges, it also creates significant opportunities.

In today's connected age digital media consumption is given, and individuals are adapting to the massive amounts of information they're exposed to every day. Brands must go beyond basic demographic segmentation because digital lifestyles and behaviors are more tied to attention levels than demographics. Individuals' increasingly digital lifestyles are also making them more efficient at processing information and recording it to their memories. They're able to do more with less so that they can move on to the next new exciting thing. All this means that brands need to find different, more creative, and increasingly immersive ways to market themselves and engage targeted consumers. The truth is that more and more filtering instruments will be incorporated in the era of infobesity, social networks, search engines, and portable apps to guarantee that the material supplied to customers is relevant to them. The role of marketers is, and has always been, to produce the best, most relevant content (whether in mass media or digital media) to break through the filtering algorithms and into the digital news streams of consumers.

1.1.2 - The power of Visual Representation

Companies can take advantage from the power of *Visual Representation*: it's the challenge and opportunity for marketers to embrace the new rules of engagement and think creatively about how the use of visuals can support their

goals. It has the potential, when dose correctly, to enhance loyalty, fortify customer relationships, increase awareness, and more (Walter, Gioglio, 2014). Research shows that there is a science justification explaining why individuals react more strongly and faster to visuals than text alone. Visuals are processed 60.000 times faster than text by the human brain and 90% of information transmitted to the brain is visual. Humans evolved in order to respond to visual information long before they developed the ability to read text.

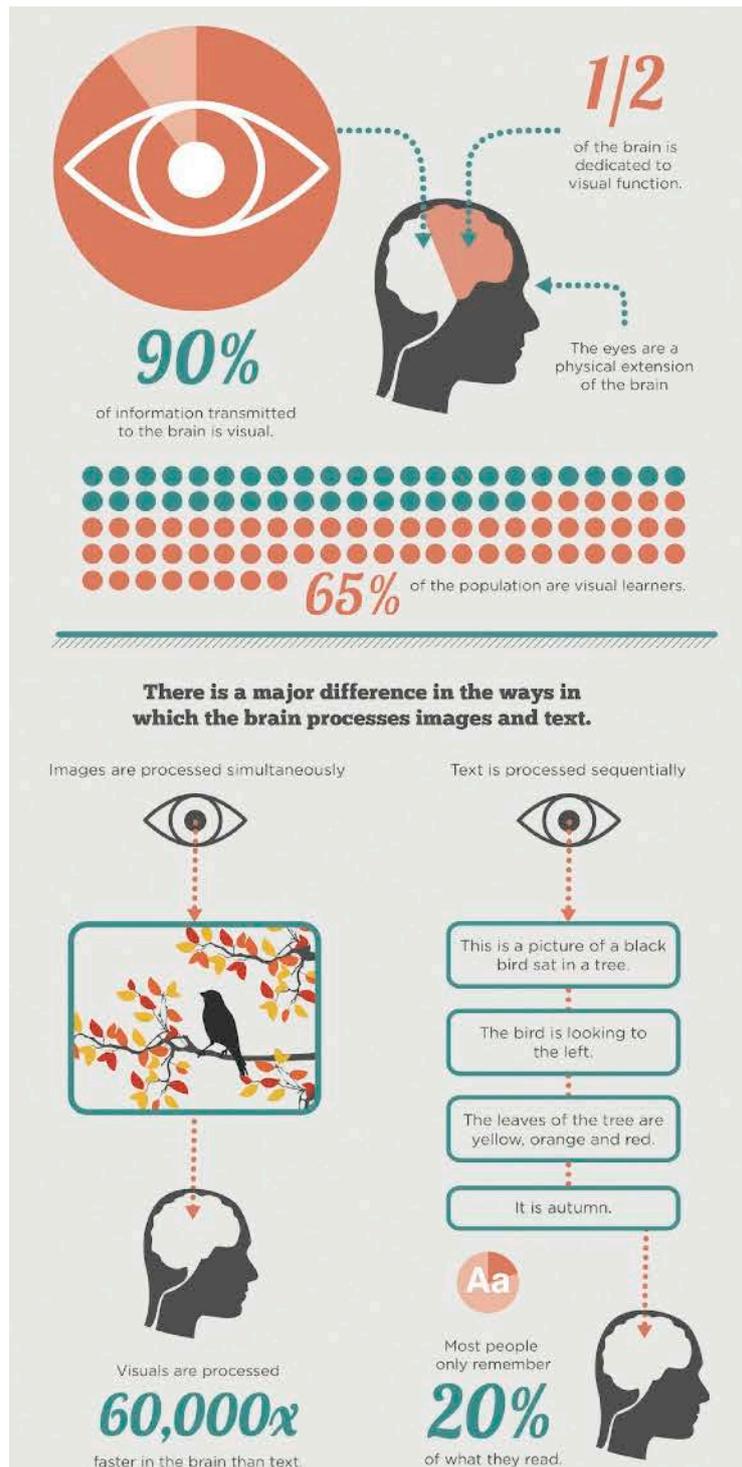


Figure 1.2: Image vs Text
Source: Neo Mammalian Studios

In fact, following a research of Simon Thorpe in 1996, he deduct that:

- almost 50% of brain is involved in visual processing
- 70% of all sensory receptors are in our eyes
- 80% of memories are determined by what we see
- it takes less than 1/10 of a second to process a visual scene

From this study we can infer that consumer interest in visual content isn't necessarily just a preference: it's actually easier and faster for humans to process. The right picture can be way more immersive than just telling a fact visually; it can make you feel emotions, evoke memories, and even make you act differently.

In the 1960s, Professor Albert Mehrabian revealed that 93% of communication is actually nonverbal. By this he intended that most of a message's emotions and behaviors were derived from the facial expressions and the way in which words are said. The left 7%, were derived from the real words being said out loud. It's not only the meaning of a message that is conveyed more precisely by visual information; also issues of trust and credibility are carried by images far more so than text.

Creating the right image to convey your message relies on understanding whom you are communicating with and how they will react to it. Communication is a two-way process, and marketers have to be as sure of their audience as they are of the images they are crafting to reach them. The right graphics can persuade, relate, and influence decisions on an emotional and subconscious level. Images are powerful tools, and we are becoming an ever-more visual culture.

Graphical excellence is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space.

Edward R. Tufte

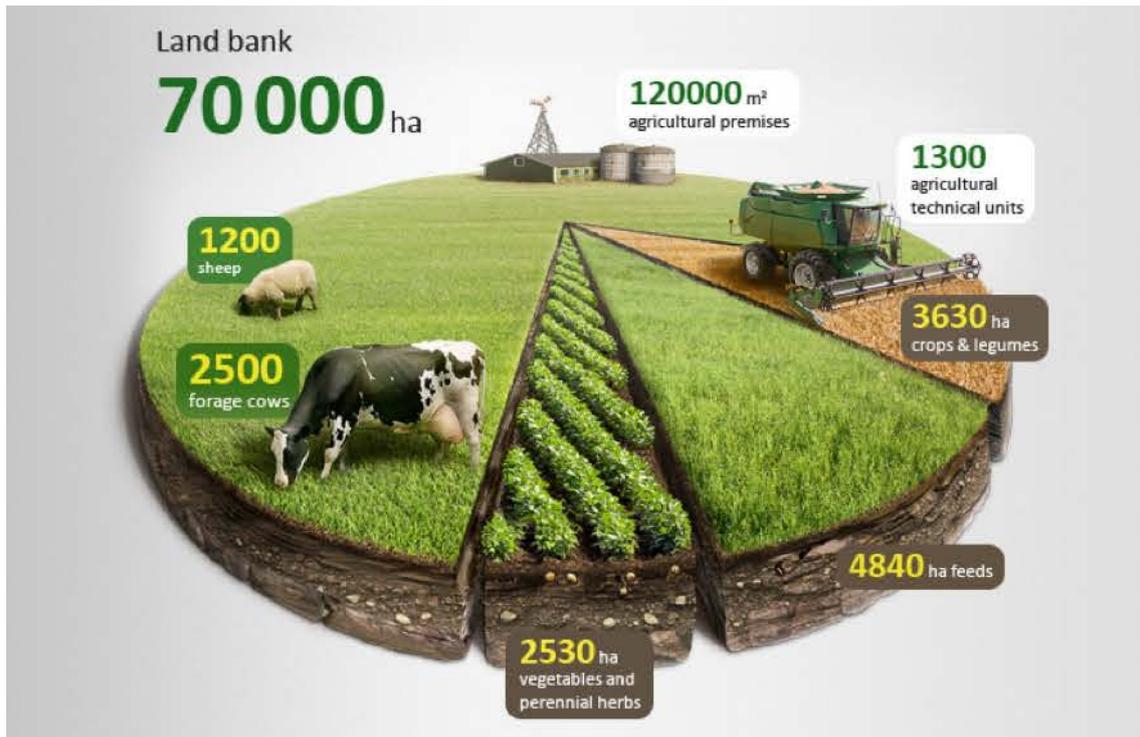


Figure 1.3: Agriculture 3D Infographics

Source: Visually

1.2 - A World of Visual Representation

When we want to communicate an idea, a thought, a project often we use images: they could be a sketch on paper, a drawing on a blackboard or a multimedia presentation. *Visual representations* help us to illustrate concepts that, if expressed verbally, would be difficult to explain clearly to a hearer. It graphically represents information to efficiently and effectively create meaning. For example, imagine having to explain to someone on the phone how to assemble a piece of furniture: convey the concepts, in this case, would be difficult and inefficient. When we have to illustrate concepts, ideas, and intrinsic properties with data the use of visual representation acts as a faster and more effective communication tool. The difficult part is in defining ideas into representations that effectively achieve their goal.

Visual communication can include interactivity, iconography, illustration, infographics, graphs, data visualization and animation.



Figure 1.4: Proper Visual Communication

Source: *Killer Infographics*

1.2.1 - Edward Tufte & Nigel Holmes

Edward Tufte, one of the leading contemporary scholars of this discipline and Professor of Computer Science, Statistics and Political Science at Yale University, says that "*excellence in statistical graphics consists of complex ideas communicated with clarity, precision, and efficiency*" (Tufte, 1983). Image must provide to the reader all the data that can be processed quickly, using as little space as possible.

Tufte is certainly the most important expert in the world of statistical graphics for everything related to the excellence of visual representation. His works, such as *The Visual Display of Quantitative Information*, *Visual Information*, *Visual Explanations*, and *Beautiful Evidence*, are true milestones in the field of statistical graphics. According to Tufte, an image can be defined as a well-structured presentation of "interesting" data. It is something that combines substance, statistics, and design. It aims to present complex ideas clearly, precisely and efficiently. More generally, it communicates to the viewer "*the greatest number of ideas, in the shortest possible time, using the least amount of ink, in the smallest space*" (Tufte, 1983).

The most thing that worries Tufte is the routine use of graphics in an ignorant, excessive and very decorative way. He gives a lot of importance to the complete understanding of the message to be transmitted and to the work necessary to achieve this goal maximizing the *Data-ink ratio*. It's a criteria that pay attention to the number of elements present in a visual representation. It is important not to overload the reader with too many elements, which could be unnecessary, if not positively damaging, to the final learning.

"A large share of ink on a graphic should present data-information, the ink changing as the data change. Data-ink is the non-erasable core of a graphic, the non-redundant ink arranged in response to variation in the numbers represented" (Tufte, 1983).

According to Tufte, when a chart is closely examined, each point has value. Elegant visuals are professionally designed with great attention to detail, avoiding decorations lacking in content and choosing an appropriate format and design. Complex details should be easily accessible and used to display data.

He accords terms such as *chart-junk* (consists of non-data and redundant data elements in a graph). He argues that any visual content of a design that does not communicate specific information is unnecessary and should be avoided. He believes that chart-junk such as unessential lines, labels, or decorative elements only distract the viewer and distort the data, thus detracting from the graphic's integrity and decreasing its value.

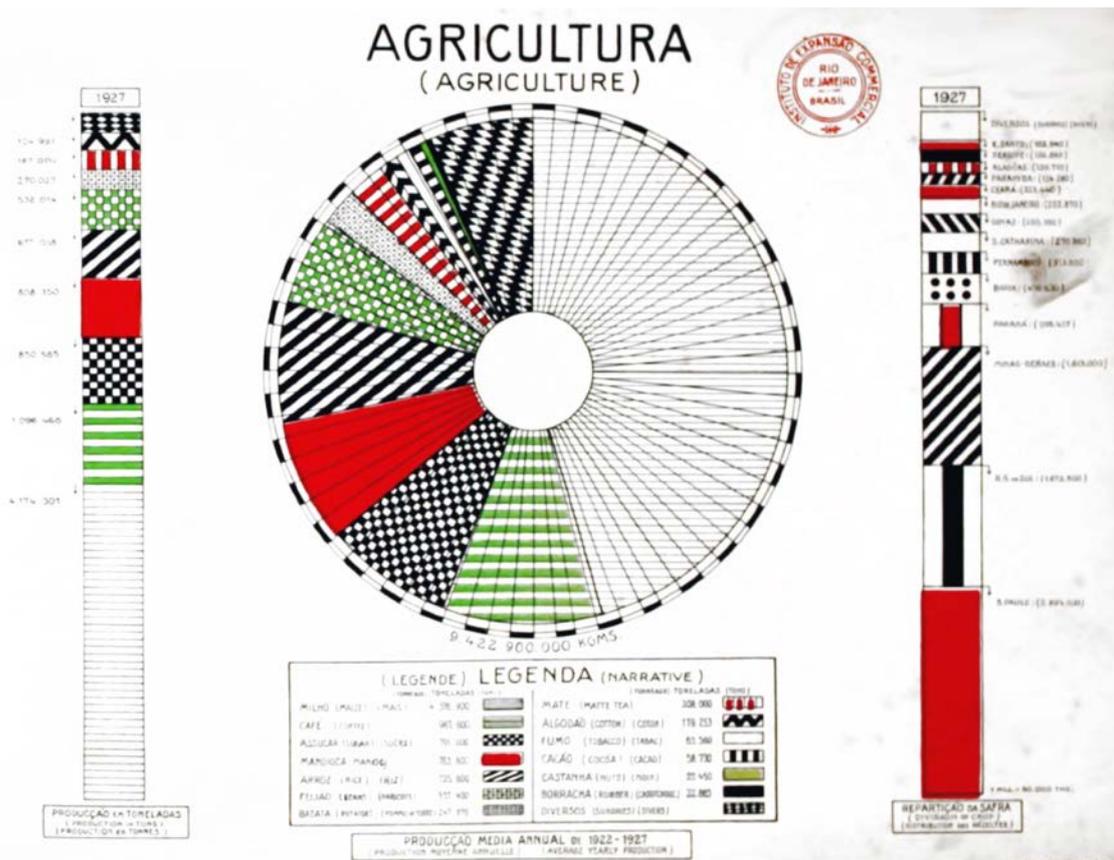


Figure 1.5: Example of *chart-junk* "Several graphs portioning the agricultural products of Brazil"

Source: *Brasil: Graphics Econômicos - Estatísticas 1929*, p.5

Although Tufte admits that decorative elements can help to understand a topic in some cases, his teachings generally discourage their use.

On the other hand, Nigel Holmes supports the intense and appropriate use of illustration and decoration to decorate information design. Holmes is best known for his illustration of the "graphic explanation" he did for *Time* magazine from 1978 to 1994. He argues that the use of illustration and visual metaphor to reinforce the topic makes the graphics good-looking to viewers and easier to understand. Recent studies show that these decorative elements can also help the long-term storage of the information presented in our mind and an easier recall in memory after times.

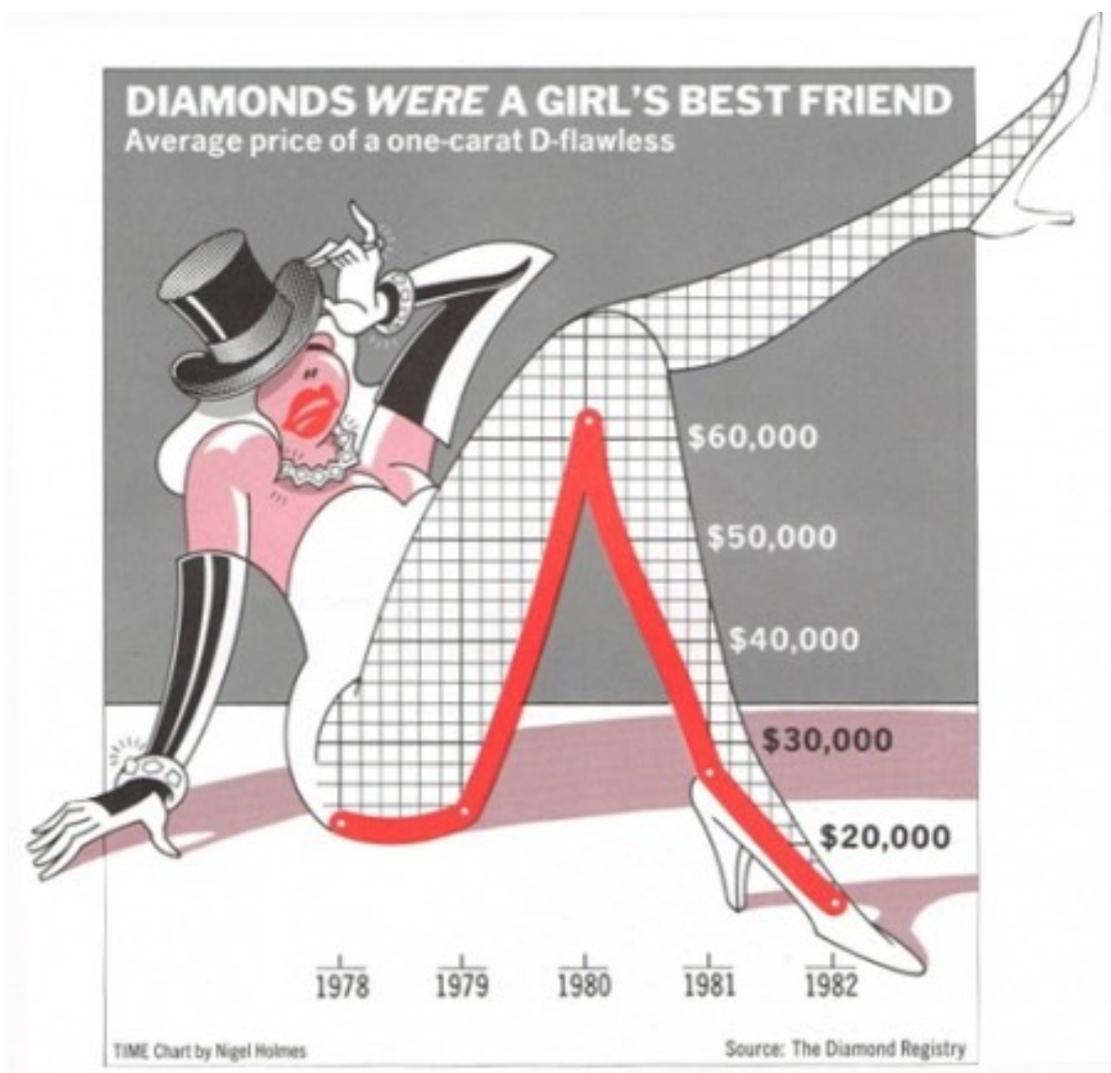


Figure 1.6: Diamonds were a girl's best friend

Source: *Time* chart by Nigel Holmes, as it appears on (Holmes 1984, p.32)

Both methods should be correct. What people often ignore in these debates is the most central point to any design: the objective. Tufte's method is to encourage his audience to analyze the information in the most neutral way possible, without bias. Differently, Holmes tries to editorialize the message to appeal to the reader while delivering the value knowledge he wants readers to take away. Tufte's communication is explorative: he encourages the viewer to explore and extract his or her insights. Holmes's, on the other hand, is narrative and prescribes the intended conclusion to the viewer. The difference is inherent in their areas of work, as the objectives of science and research are much different than those of the publishing world (Lankow, 2011).

Information graphics are visual representations that use graphics or maps to combine data and design quickly and clearly display complex information to the viewer. For millennia, they have been used and are commonly used by the press today. Explanatory images transmit data to readers in a continually evolving visual world more clearly than phrases can, and they do so by connecting viewers with fine artistic material.

When analysts start examining the information, the data is collected and studied, sorted through to find relevant sets. They create projections or recommend customers on feasible approaches using the selected collections of appropriate information. Often, the examination of information comes into two stages: exploratory and confirmatory. Exploratory data analysis and confirmatory data analysis work best when proceeding side by side.

1.2.2 - Explorative Data Analysis

Exploratory Data Analysis (EDA) is the first component of the data analysis method and it identifies what to do with the information, identifies the answers you want to address and how to structure it, and identifies the best way to display and manage the information you need to capture these significant perspectives (Blitz, 2018). Using EDA, analysts are looking for clues and trends that will help them come to a conclusion. Jacques Bertin (a French cartographer who, as early as 1967, wrote a work that defines the basic elements of each visual representation) defines it as "*the visual medium for solving logical problems*".

Let's use an example to demonstrate the notion. The figure below demonstrates some statistical data from 1970 to 1994 on cancer-related mortality among females in the U.S. The regions (3,055 in total) are represented in the graphs by a color scale ranging from blue to red, depending on the percentage of cases in each region. Thanks to the color, geographical regions can be identified with a median (white), lower than the median (blue) and higher than the median (red tones). It is obvious that above-average instances are discovered primarily in the areas along with the east coast and in the United States' south-east. This and many other pictures have been created by the American National Cancer Institute to identify feasible factors for the tumor's start. The representation in figure does not provide an indication as to why the incidence of death in some areas is greater than in others but may suggest that scientists conduct epidemiological studies in some regions that may throw light on variables that boost the danger of cancer. Through this type of representation it is easier to understand the results of a certain analysis, rather than presenting a table of data and numbers that are hard to comprehend.

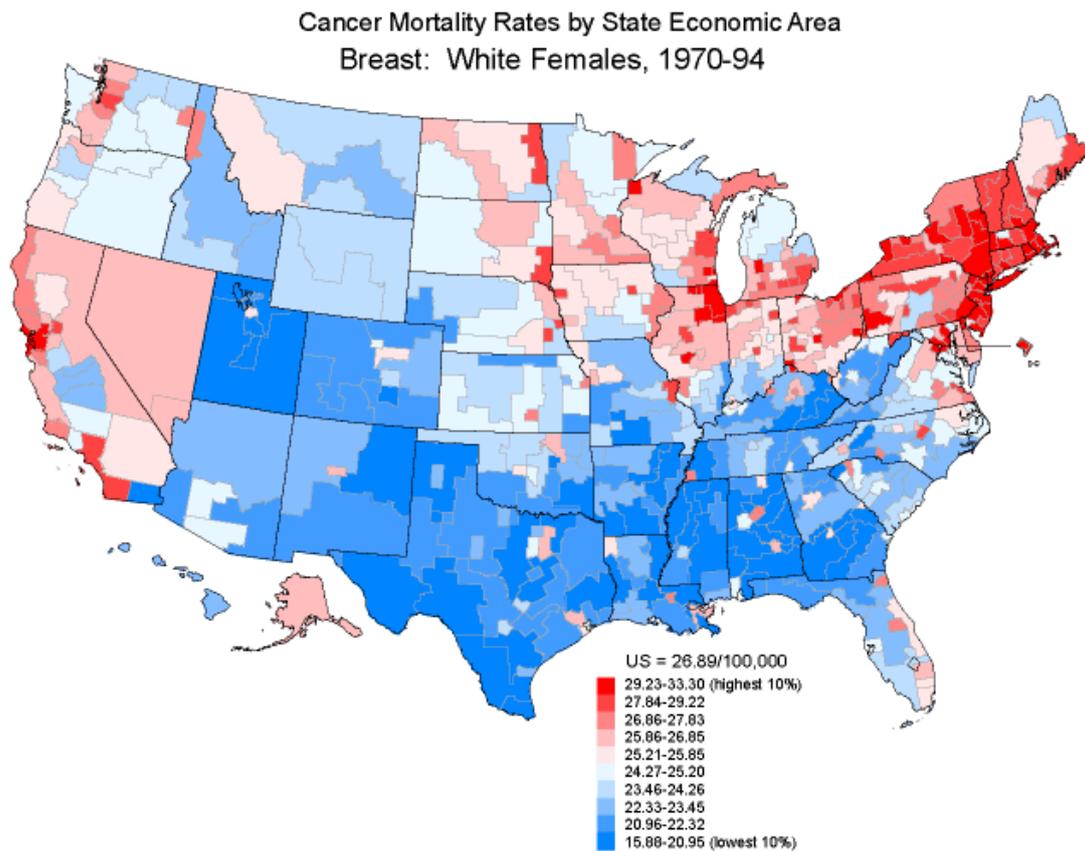


Figure 1.7: Cancer Mortality Rates

Source: State Economic Area

1.2.3 - Confirmative Data Analysis

Visual representation is also a visual medium for confirmatory analysis of structural relationships between data sets, confirmation or assertion of data hypotheses. CDA is the method used to assess evidence by challenge their information assumption. This part of the procedure is where analysts work back from their conclusions and measure the outcome of the work. CDA includes processes such as testing hypotheses, estimating, analyzing regression (estimating the relationship between variables) and analysis of variance (evaluating the difference between the planned and actual results).

You only understand something relative to something you already understand.

Richard Saul Wurman

For instance, stock market members are well aware that events are influencing the stock exchange of different countries. This can be illustrated by the figure showing the standardized 100-based comparison between the ten-year Bund yield on an annual basis and the ten-year T-Bond. In the figure, it is easy to see how the up-and-down phases of the two stock markets follow a similar trend compared to each other. This correlation between the two indices, clearly represented by an image, could be shown by using complicated mathematical formula, which would certainly be less expressive and intuitive than an image.



Figura 1.8: Standardized 100-based comparison between the ten-year Bund yield and the ten-year T-Bond.

Source: *Il Sole 24 Ore*

1.3 - Information Visualization

We often take it for granted that the only way to convey information is through text-based media, as so many of our channels have used this type of method: books, journals, papers, and the internet since its inception. Today, the Internet is increasingly lending itself to all kinds of transmission of sensory and auditory data. Besides data transferred through ordinary images, text or audio records, there is also the evolving field of *information visualization* of data in which tools are created to display data in adaptive and interactive forms.

For some authors, the traditional definitions of information visualization apply alternatively to "scientific visualization" and it should be differentiated from information visualization of today. "*Unlike scientific visualization, information visualization typically involves non-numeric, non-spatial, and high-dimensional data*" (Chen, 2005). Scientific visualization and information visualization, according to Manovich (2011), are different and came from distinctive cultures: science and design. The growth of information visualization has risen in the 2000s, with high-level programming languages and APIs being adopted by developers. Over the past few years, information visualization has shifted from a sophisticated research topic to widespread adoption, involving lay users as opposed to a traditional audience of scientists and analysts.

Authors refer to these types of visual or graphic representations defining them with the term *visualization*. Visualization has traditionally focused on supporting expert users to explore and analyze complicated information as efficiently and effectively as possible and represent data in a scientific and neutral way (Vande Moere, Purchase, 2011).

Robert Spence, a British engineer, has noted that there is a wide range of uses for displaying the term. In his last publication in 2000 "*Information Visualization*" define "visualization" as the activity in which humans beings are engaged as internal construction in the mind; it can't be printed on paper or

displayed on a computer screen. We can summarize that “visualization is a cognitive activity, facilitated by external visual representations from which people build an internal mental representation of the world” (Ware, 2004). In this way, with some tools, computers can promote the visualization method, particularly with the use of progressively strong and low-cost software in the latest years. The above description, however, is autonomous of computers: although machines can make visualization easier, it stays an exercise that happens in the mind. Some writers use the word visualization to relate to both the visual written representation and the knowledge of an object cognitive process. By using pictures, we are concerned in digitally depicting information that can be produced, calculated or discovered in many different aspects, such as statistics on the recent World Cup of Football, information on the evolution of the world population, information disclosed by environmental pollution screening instruments, etc. The purpose of this data is to inform and organize information through (visual) data assessment.

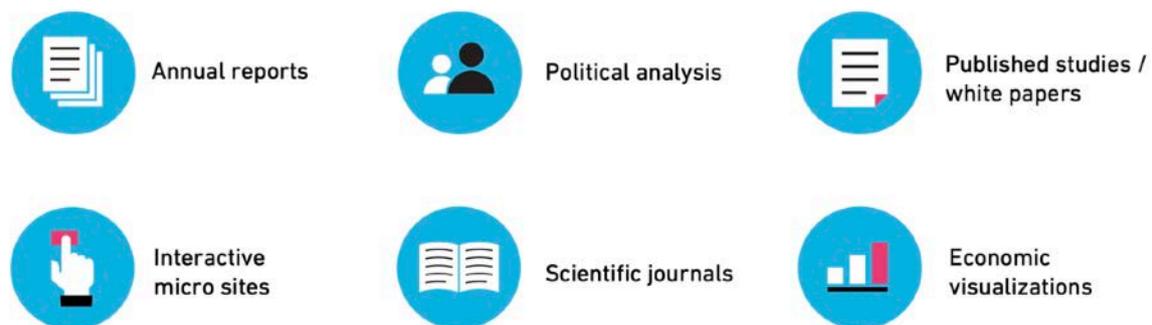


Figure 1.9: Information Visualization Uses

Source: Killer Infographics

1.3.1 - The DIKW model

How is information generated in visual form from the data we collect?

Nathan Shedroff, a design visionary and author, analyzed how the process of understanding data take place and he defines it as the "continuum of understanding". The analysis is based on several models known as DIKW Hierarchies (Data, Information, Knowledge, Wisdom) in which the two extremes are represented by Wurman's maxim. According to Richard Wurman, professor of architecture and graphic designer, one of the main goals of information architecture is to help people avoid information anxiety: the gap between data and knowledge.

The model, as we can see also in the diagram, is composed by:

- **Unstructured information** means reality: the world out there in all its complexity.
- **Data** are records of observation on which we build the information and our communication processes. Data itself has no meaning. Let's take the example of the data on the car import-export index of the last quarter. The collection of these data if taken individually would not be very useful to the public because they are not sufficient to create a communicative process.
- These data must first be drawn up, organized and presented in clear formats. This manipulation process produces **information** that *"is accomplished by organizing it into a meaningful form, presenting it in appropriate ways, and communicating the context around it"* (Jacobson, 1999).
- When information is combined with experience, it creates **knowledge**. It's not a passive process; when people see, read, or listen, they obtain the knowledge with which we are capable to understand everything. The improvement of knowledge should be the main purpose of any communication process.
- **Wisdom** is the highest level of understanding. It is the most advanced level of knowledge of processes and relationships (Shedroff describes it "meta-

knowledge") and the individual can make a qualified judgment on data. It makes us better at knowing what to do in other situations, but unlike knowledge, it cannot be directly transmitted or taught.

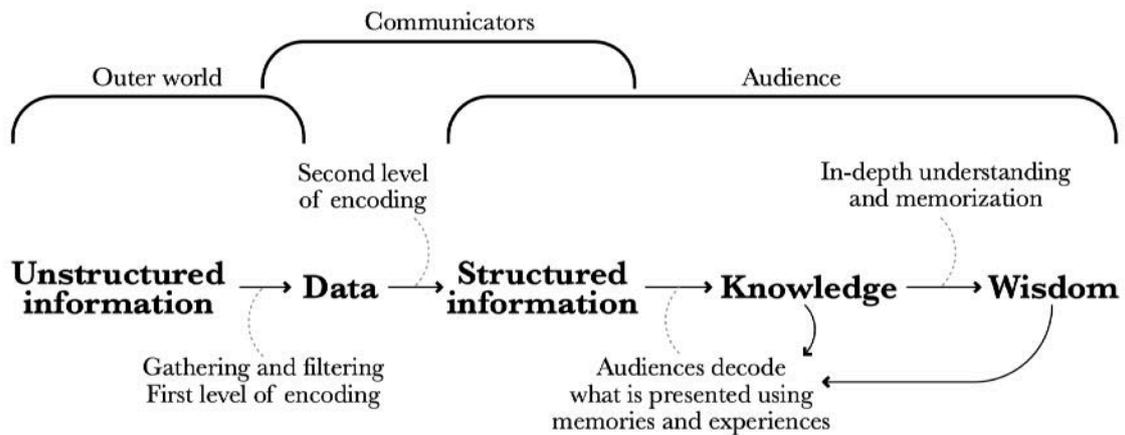


Figure 1.10: DIKW model

Source: Cairo A. "The Funcional Art"

As we can see, the brain always tries to reduce the gap between observed phenomena and knowledge or wisdom; this is what cognition means. "The role of an information architect is to anticipate this process and generate order before people's brains try to do it on their own" (Cairo, 2012).

Between data and information is displayed *data visualization*.

It provides the methods and tools with which to organize and represent data to finally produce information.

1.3.2 - Data Visualization

Data visualization is now a growing practice among designers, artists, network scientists, mathematicians, journalists, visualization architects, and educators. If we search on Google the term “data visualization”, it revealed 103 million possible results and it is increased over than 100% in the last 5 years.

Data visualization is a term used interchangeably with “visual analytics” and “data journalism” to describe the study and creation of the visual representation of data. Displaying data in interactive visualization makes it easier to transform data into information because its grouped in meaningful ways that allow viewers to recognize trends, patterns, and correlations, which are also referred to as phenomena (Klein, 2014).

Individuals and organizations can apply *infographic* to improve the way that they report data, regardless of the audience. Based on the VARK model, people use four primary learning styles to process information: Visual, Auditory, Reading/writing and Kinesthetic (learn by doing). Organizations using infographics to communicate their ideas and information have an opportunity to bridge the knowledge gap with their audiences and improve the levels at which customers and prospects engage with their marketing content. In addition, it can improve learning among employees and other stakeholders.

Infographic is data visualization that present complex information quickly and clearly and it can include sings, photos, images, maps, graph and charts.

As we can see in the next chapter, the importance of infographics are making information more appealing, persuasive, memorable and easier to understand, showing valuable ideas with a clearly focus on attention-grabbing.

*If you can't explain
it simply, you don't
understand it well
enough.*

Albert Einstein

Chapter II

2.1 - New Form of Communication

The visual representation of information is not only a way to show what has been discovered, but it helps to understand the content and add new knowledge and meanings. It is defined as "infographic" because it uses a combination of images, words, and numbers that operate in a hybrid verbal-visual system, which consequently offers the greatest opportunity to increase the effectiveness of communication and help the reader see how pieces of information relate to each other.

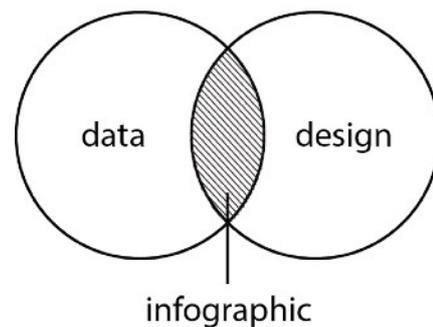
The infographic has the responsibility, not always simple, of:

- make the hidden parts visible;
- simplify complex notions that can only be understood by professionals (technical and scientific news);
- highlight those topics that, sometimes, are hidden between the lines of news.

The great amount of information that every day our brain is forced to absorb, rework and store, has led the user, overexposed, to lose the ability to concentrate and, therefore, it becomes difficult to capture his attention to let him read data of an article. Sometimes the reader just looks at the title, dwells on the image (photo or illustration) that accompanies it and read the few lines of the caption; this one, along with the graphics, it's important to attract his curiosity. Infographics exist because visual patterns are recognized quicker than text. Briefly, infographics are fast, the text is slow. Why does this happen? Because we scan text sequentially: one word at a time. Instead, we can simultaneously scan images in different places. We can say, ergo, we have discovered a quicker way to understanding. Infographics are our instrument to deal with complexity. The infographic should be able, if well documented and

illustrated, to explain every topic clearly, from the technical notes of assembling an engine to the map of the Twin Towers' tragedy. It should be able to turn on the desire to deepen the subject, move the attention on the text and begin the adventure of reading the news.

In the 1960s, the term infographic began to appear regularly. Since then, no full consensus has been reached on what infographics are. Here's what most people agree on: infographics are some combination of data and design, and by *data*, we mean both numbers and facts.



However this concept is incomplete. There's lacking a more significant aspect. It is not obvious because it is transparent. And this transparent thing is what makes infographics work. Let's take an example: the subway map. It looks like nothing unique at first: we look at our destination and we take the ride. We take the subway map for granted. And that's what constitutes it so brilliantly: we all comprehend it the same manner, no matter which nation you come from, your language, age, or background. Whether you're going to London, Madrid, or New York, you're going to use the same map as the others. Between individuals, this rarely occurs. Maybe you are thinking, "That's a very clear concept... how else would you design it?" That's the point. It implies that the



map has been able to show information without realizing how it has been done. Without seeing the form, you saw the substance. This is the hidden power of infographics. And in visual communication, this is something we scarcely encounter.

VISUAL COMMUNICATION THAT WORKS

Infographics



The infographic elements include a horizontal bar chart at the top, a bar chart with a callout box, a pie chart, and two horizontal bar charts. At the bottom, there are social media icons for Facebook, Twitter, YouTube, and Instagram, along with a list icon.

-  Gives a straightforward and informative viewer experience
-  Great for high-level explanations of a product, service, or issue
-  Shares well on websites, blogs, and social media outlets

Figure 2.1: Infographics: the visual communication that works.

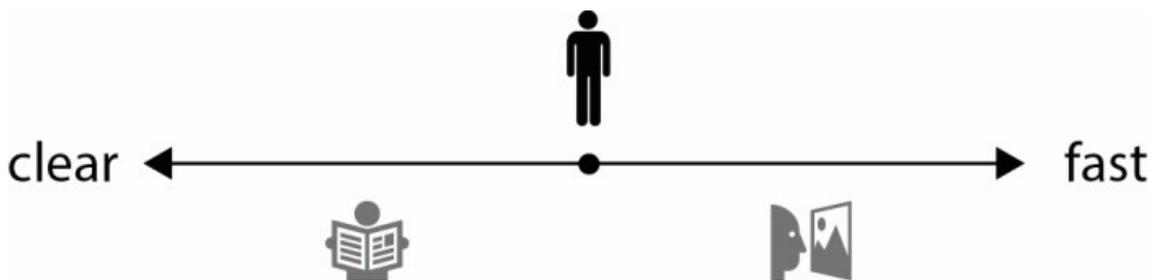
Source: *Killer Infographics*

2.2 - History of Infographics

The world runs on communication. We would all suffer without communication. Communication itself is, surprisingly, an unsolved problem.

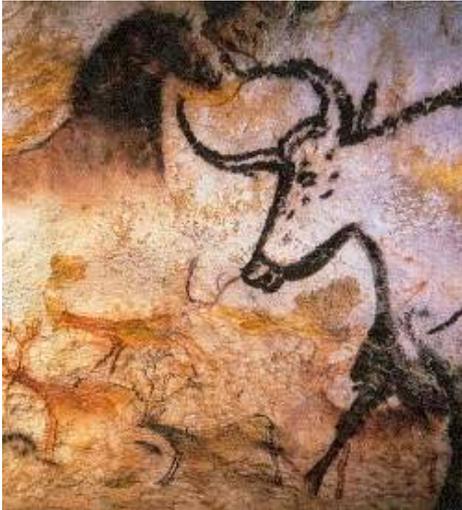
Here's the issue: to send a message to another person, we need to express it clearly and quickly. This puts us in a double bind: it won't be clear if we explain it quickly; if we make it clear, it won't be quick. Thus, discovering a solution to get clear and speed at the same moment is the main answer to the communication problem (Vital, 2018).

For example, fast communication comes through emotions and senses, such as seeing pictures. Clear communication is via logic and language, so with text. What if we used both simultaneously?



Unfortunately, mental reasoning and logical feelings are negating each other, contributing to total misunderstanding. Then the true issue is: how do we use both logic and emotion, both speech and image, both information and narrative, without any loss of significance to each one?

The infographic, as already said, is about telling a story through the representation of data in graphic form. The link between sign and representation is very old. Think of the ancient rock representations of the primitive man who painted in the caves and rituals animals. These representations tell us something about those populations of which otherwise we will know almost nothing. But words were difficult to get through, so we created writing. On a cave wall, we painted a bull. This was communicating



fast. But what did that imply? Everybody in the cave had a different interpretation of the symbol painted. Some believed it was "The bull I took for lunch"; others believed it implied "Warning, bull in this region". Then we got a wonderful idea: we all compromise on what the bull's image implied. We also decided on how to sketch it precisely: we standardized the image of the bull. That was

an achievement because we created typing, and then we asked to our children to keep drawing the bull the same way.

The man soon left the caves and his hunting grounds to start exploring the world. At that time we needed tools that represented the vastness of the land and water, so cartography was born. Several millennia before the writing, the maps were the first examples of an infographic, in which you can immediately recognize where you are in a two-dimensional. The oldest cartographic find comes from the archaeological site of Çatal Hüyük, which dates back to around 7500 BC.

The Renaissance is a true milestone in the evolution of infographic thought the perfection of Leonardo da Vinci. As in Figure, the Italian inventor sketches that the viewer of his papers could comprehend beyond the text: first information graphics, use of texts, sequences, schemas were introduced. There is much more in his works than aesthetic beauty, the works are very educational. The actual Western visual information is the result of the technique that Da Vinci used.



Joseph Priestley was one of the first to use a timeline in his "A Chart of Biography", published in 1755, where he indicates the lifespan and the place over the centuries of many imported characters of the past.

2.2.1 - William Playfair

Furthermore, Priestley was the inspiration for William Playfair, who in 1786 published the first data graphs in his book "The Commercial and Political Atlas". The book is full of statistical charts representing the economy of the eighteenth century, using histograms and column charts. Playfair continued to innovate in 1801 by creating the first area charts in its statistics breviary. The idea born by mapping the temperature outside. He decides to register the thermometer on a paper every morning. The values were meaningless until one day Playfair decide to combine them with a line. The line showed climactic changes from winter to summer. He believed of the wonderful concept that anything under the sun could be shown in proportion to its size as a line, rectangle, or circle. The line graph, bar chart, and pie chart were born.

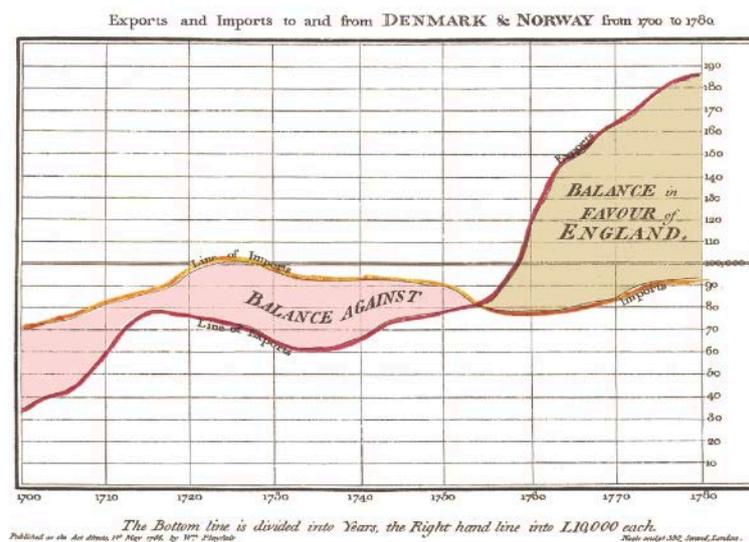


Figure 2.2: "Exports and Imports to and from Denmark & Norway from 1700 to 1780"

Source: Playfair W. "Commercial and Polital Atlas", 1786

The other big step forward in data design is given by Florence Nightingale (1820-1910). In 1858, while working as a nurse during the Crimean War, she stressed the medical conditions under which injured patients were treated, and the major reasons soldiers were dying in hospital. She invented the polar chart, based on Playfair's pie charts. Her polar chart was a circular chart of causes of death from disease, injury and preventable disease. This graph illustrates the volume of lives that could have been saved if health services had been improved.

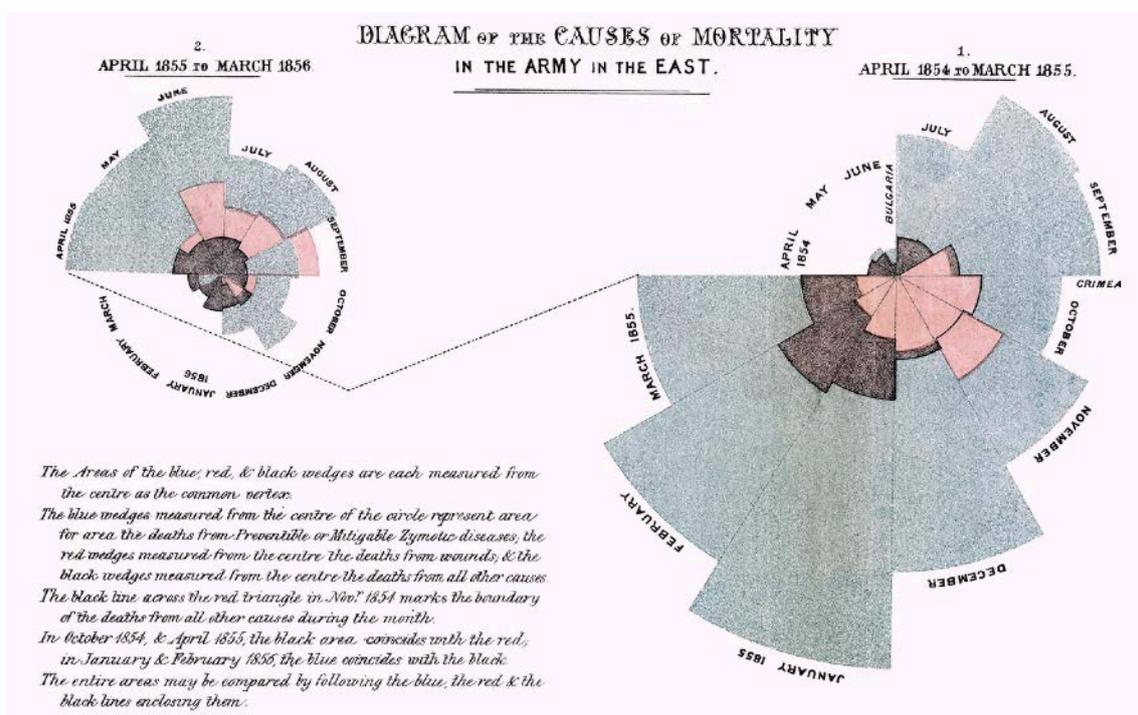


Figure 2.3: "Diagram of the Causes of Mortality in the Army in the East"

Source: Notes on Matters Affecting the Health, Efficiency, and Hospital Administration of the British Army, 1858

The criticism advanced to Minard's masterpiece was that people are not represented. Only by reading the caption next to the graphic we can understand if we are talking about real people or real deaths.

2.2.3 - Otto Neurath and the Isotype code

This problem provoked another philosopher in Austria, Otto Neurath (1882–1945), who wanted to show physically what the numbers meant. Neurath was aware of the increasing role that images were taken in the field of communication: " [] *modern man receives a large part of his knowledge and education in general through visual impressions, illustrations, photographs, films*". Newspapers are showing more and more images from year to year. Besides, advertising also works with optical signals and visual representations. Exhibitions and museums are certainly the results of this incessant visual activity. Neurath imagined a visual language composed of icons that could be combined according to established rules, to create a system of universal visual communication.

In 1936, he introduced a system of pictograms designed as an international visual language: Isotype (this is the name of the group of pictograms), an acronym for International System of Typographic Picture Education, is a system of representation, through signs, that allows complex data to be visualized and that overcomes the cultural and linguistic barriers of each country. He was one of the first to introduce the concept of universal communication, the theme of visual culture, the evolution of writing systems and the importance of graphic design in the dissemination of information. Isotype was developed to disseminate quantitative information with social objectives. Neurath's goal was to make statistics interesting to the masses.

To remember simplified pictures is better than to forget accurate figures.

Otto Neurath



Figure 2.5: Isotype Icons

Source: *Design 4*

Design Principles

Among the most important design principles of the Neurath Isotype, and which still today remain the basis of today's international pictograms, are:

- *Reduction*, isotype signs are shapes without internal details;
- *Consistency*, governs the stylistic uniformity of a set of symbols;
- *Front-parallel representation*, isotype signs are usually represented frontally so that objects tend to emerge on the surface, thus belonging to the observer's space;
- *Limited use of the inclined plane*, if the three-dimensionality of the object is required, axonometry is used and never the perspective;
- *Readable without further explanation*, if a descriptive label of the sign is necessary, then the symbol is poorly designed, it must be made in such a way that it is a "talking" object;

- *Differentiated from each other, so no confusion is generated;*
- *Simple, to be lined up like the letters of the alphabet and easily stored;*
- *Use of colors, only seven basic colors are used: white, black, brown, blue, green, yellow, red.*

Neurath said: “[] an image that makes good use of the system must convey all the important information about the element it represents. At first glance, you see the most important elements, at second the least important, at third the details. At the fourth glance, you should no longer grasp anything”.

2.3 - Contemporary Infographics

The first contemporary infographics derived from Peter Sullivan's hand in *The Sunday Times* (Britain's most famous newspaper) during the seventies. The philosophy of using visuals to create an information easier to understand was strongly conceived. A method of communicating, that had lived since ancient times, emerged at the start of the '90s, centered on freehand animation, but had limited ways of work and combination of text and images on the computer screen. Our culture has been transformed by new techniques, methods of working and thinking. These changes have affected how information can be presented in distinct media and have used education to optimize classroom teaching.

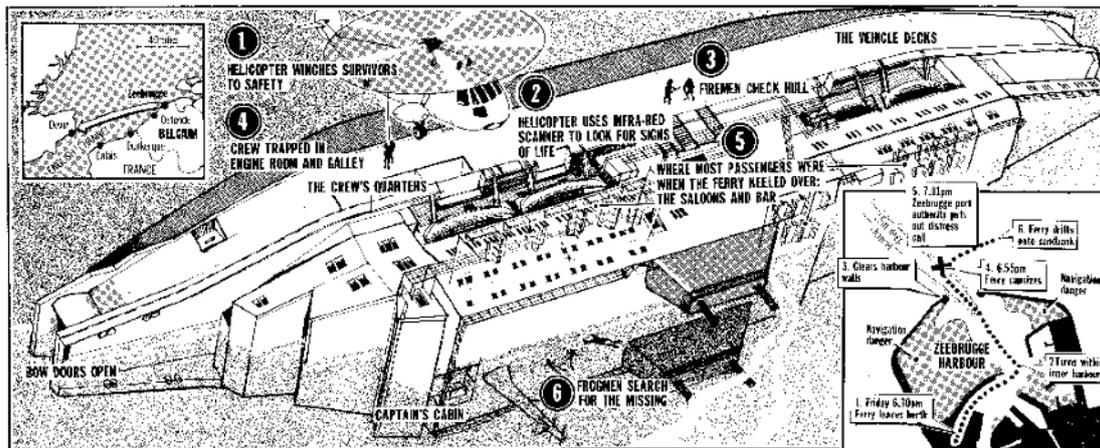


Figure 2.6: Graphic from *The Sunday Times* by Peter Sullivan "Zeebrugge ferry disaster", March 1987

Source: *Gilbert and Paul Editorial Design*

The most radical transformations can be located in the 1980s when the technologies had a strong impact on the printing press, which enabled computerization to be introduced and new visual resources to be used. In the face of the image's imminent superiority, the visual press developed fresh instruments to reach a crowd with revived read patterns, characterize by

divided speed-reading; these fresh instruments included infographics execution. This infographic method thus creates fresh parameters for optimizing production and streamlining the comprehension method on a few and much accuracy of the information, embedded in the image and writing. In this issue, infographics, along with the fresh developments in science and technology, were created as an instrument to provide fast knowledge as well as the procedures of manufacturing and transmission of data.

Luis Valero Sancho says that graphics is an informative contribution made by iconic elements (static or dynamic), typographic or auditory in visual or audiovisual communication products, enabling or facilitating the understanding of events, actions or things by accompanying or replacing written or spoken text. While the term graphics derives from only two words, it is clear that at present the implementation of this concept necessarily involves the three terms: information, computing, and graphics.

The use of infographics has expanded rapidly to the last three decades from the public life of people to their professional arenas. In 1989, Microsoft launched its Office Suite. Since then, with the support of applications like Excel and PowerPoint, people have been given access to easily create infographics.

In 2000, many other methods were used by Adobe Flash-based animation to help produce infographics. Now, most designers prefer to build their infographics in HTML 5 and CSS3 with a number of desktop application software, such as Adobe Illustrator, Adobe InDesign, Affinity, Inkscape and Pixelmator. Use image editing software to build infographics could get you the advantage to have more design freedom, build in high-resolution for print, use it/output it many formats, but they require more work, a little knowledge of image editing/design principles and the cost of the program. In addition, there are tons of free apps to create web infographics: they are easier, quicker and provide standard tools, but they have limited data input, template and design

choices and maybe restricted to their website. For example, beginners can use the free online infographic editor Easel.ly to easily drag and drop predefined vector images and upload them. Adioma is another platform for beginners, an infographic maker with icons and templates designed to explain, educate, and present. Visual.ly enables individuals to generate infographics using a database, API and social media data such as Facebook and Twitter. In addition to the fundamental layout functions, Infogr.am also offers its employees with a monthly premium of \$18 for "pro characteristics," including digital infographics, privacy checks, and other topics. People have been seeing a tremendous rise in concern in infographics since 2010. If we use Google's "Insights for Search" tools we can see how the Google search "infographics" improved from 2010 to 2012 by a whopping 800% and demand for infographics has grown by 900%. Infographics on Digg, a news aggregator, have increased by 350 times since 2007. And over 2 million infographics have been developed on Infogr.am.

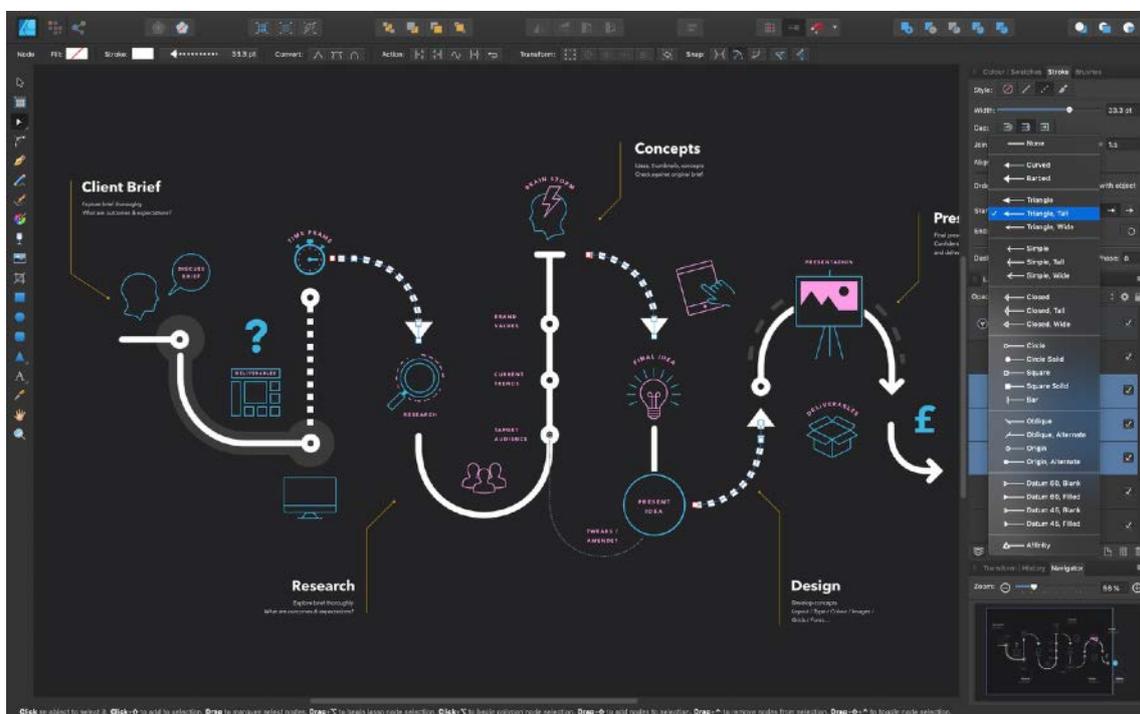


Figure 2.7: Screenshot from Affinity Designer, professional desktop program

Source: Affinity

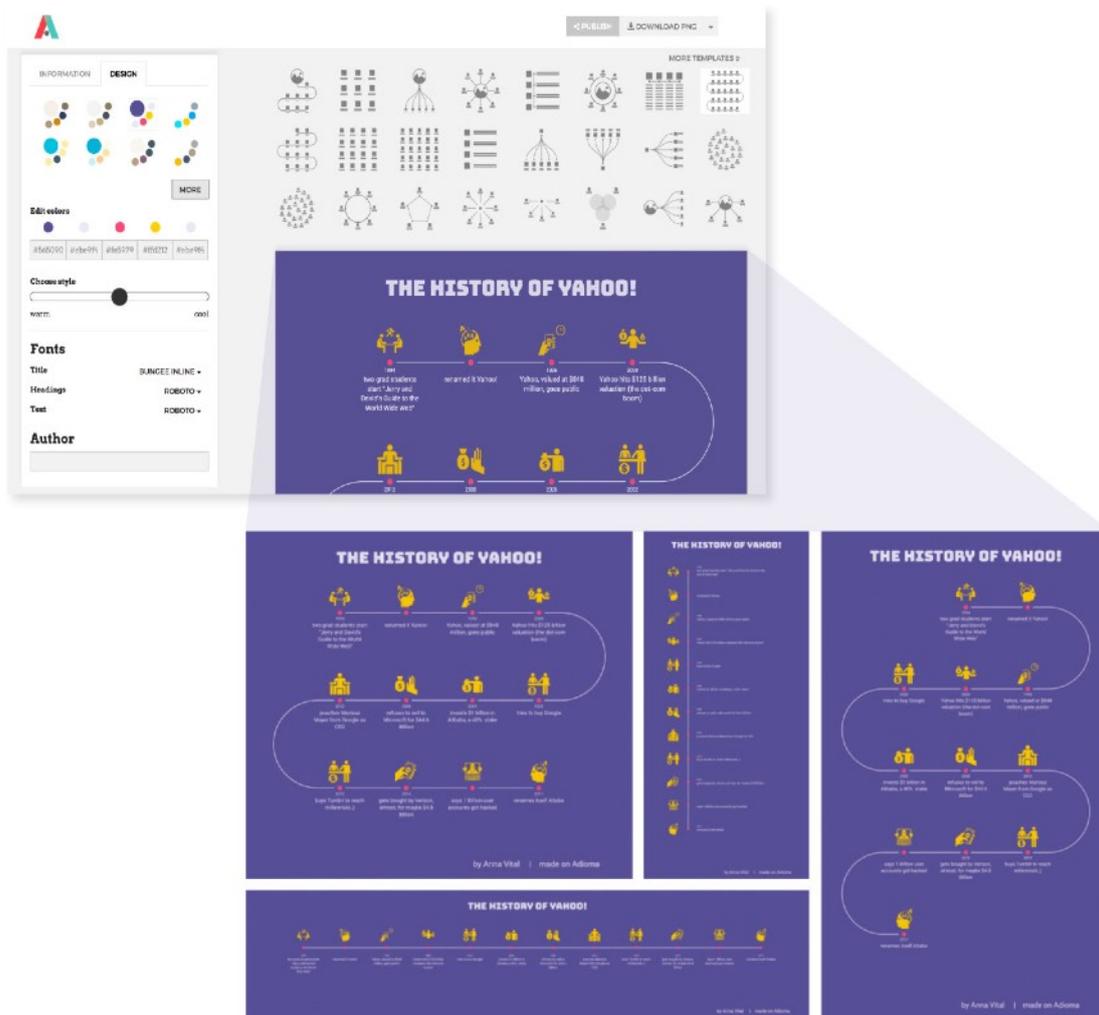


Figure 2.8: Infographics Example from Adiuma, online infographic maker

Source: Adiuma

What is an infographic today? It is a pre-generated infographic template with graphs, connectors, and icons that most people experience today. Most infographic instruments help produce infographics, but not to make sense of them. Creating significant infographics is what is important now. What is significant about it? Truthful, useful and entertaining, preferably at the same time. The top graphic statistic, Edward Tufte, provides the truthfulness values. Richard Saul Wurman, the information architect, demonstrates how to generate information usefully. Graphic designer Nigel Holmes showing how data can be enjoyable. So is it solved the billion-euro problem? Now we're probably on the

brink of it. For infographics, it's still day one. By now we know that the way to solve this issue is somewhere between the two points. On the one hand, there are the technical abstract charts invented by Playfair and promoted by Tufte, and on the other is Otto Neurath's human-centered subjective storytelling by means of analogy.

Now that we have defined the story of infographics sector, we can dig into the field of infographics today.

2.3.1 - *The Definition of Infographics*

The source of the term infographic is a mixture of "information" and "graphic," which first emerged continuously around the 1960s in English language books. Today "information graphic", "infographic", and its shorter form "infograph" all refer to the same thing. The concept of infographic lies in the fields of design, journalism, statics and information structure. It consists of four main elements, two of which give it the name we know:

1. **Data** (information) - *what* is shown
2. **Design** (graphics) - *how* it is shown
3. **Journalism** (text) - *why* it is shown
4. **Function** (information architecture) - *who* it is shown.

WHAT IS AN INFOGRAPHIC?

The Key Components and Differentiation

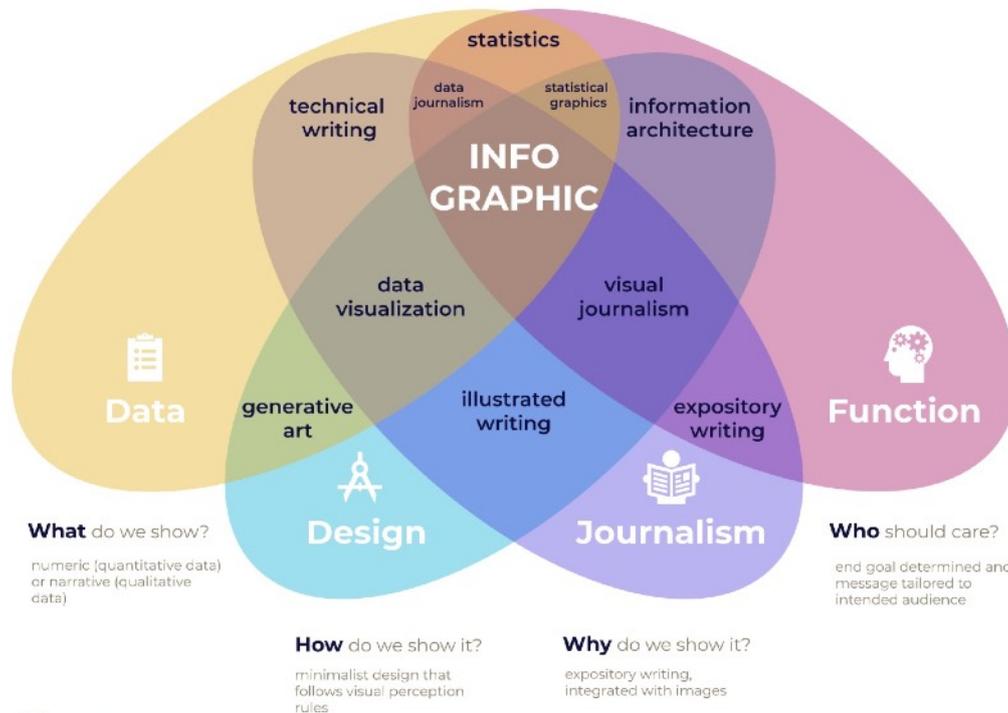


Figure 2.9: What is an infographic? The Key Components and Differentiation

Source: Vital Anna, adioma.com

According to Anna Vital, information designer and founder of Adioma, if we look at the intersections in the illustration, we can discover how infographics intersect its different fields:

- *Generative art* (data + design)
an algorithmically determined computer-generated artwork.
- *Data visualization* (data + design + journalism)
techniques used to transmit data or information by representing it as graphic artifacts (these only work with numerical data).
- *Statistical graphics* (data + design + function)
display models discovered in unprocessed technical data.

- *Technical writing* (data + journalism)
use of verifiable data to help writer data reporting claims.
- *Data journalism* (data + journalism + function)
a type of writing that depends on verifiable data to express a particular signal adapted to an audience.
- *Statistics* (data + function)
methods of extracting trends from unprocessed info.
- *Illustrated writing* (design + journalism)
use of design techniques that integrate images with an article
- *Visual journalism* (design + journalism + function)
a type of writing that integrates pictures and text to achieve a particular audience.
- *Information architecture* (design + function)
data structuring techniques that render it beneficial to the end customer.
- *Expository writing* (journalism + function)
a type of text that illustrates and tells rather than convinces.

2.3.2 - Types of Infographics

How do we divide types of infographics? Based on the methods developed by Anna Vital to create them and the tactics used to transmit them to an audience, we can classify possible infographic by:

1. *Level of interactivity*: static, interactive, dynamic and motion infographics.
2. *Visual structure*: geometric template, object-based template, chart-based template
3. *File format*: static image (JPEG, PNG, PDF, SVG, GIF), vector image (SVG), webpage
4. *Aspect ratio*: desktop, mobile, print formats
5. *Delivery*: social media distribution, viral distribution, live distribution
6. *Function*: edu-graphic, explanation graphic, knowledge graphic, info-poster.

Furthermore, infographics can be distinguished by their application areas and, according to Randy Krum, in his latest book *Cool Infographics*, we can classify five types for infographics:

Vision trumps all other sense. We learn and remember best through pictures, not through written or spoken words

John Medina

1. Informative Infographics

Their major purpose is to provide valuable information. People are “informavores” (Miller, 1983) and in the age of information explosion, they need and appreciate valuable information even more.

Informative infographics can satisfy individuals by providing a large quantity of useful data in an interestingly connected way that is easy and fast to consume, understand and recall.

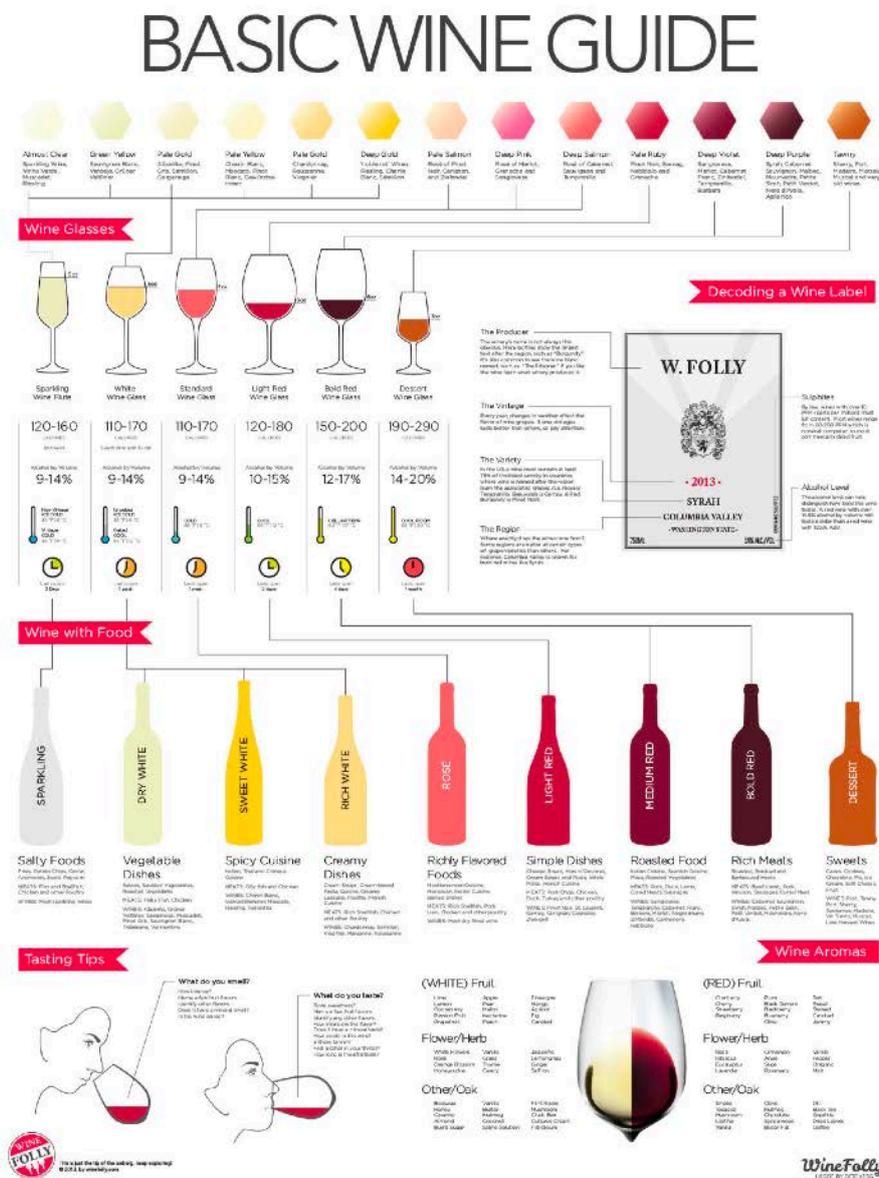


Figure 2.10: WINE 101 - Beginner's Guide to Wine

Source: Winefolly.com

2. Persuasive Infographics

Persuasive infographics are created to "lead the reader to a predetermined conclusion and then provide a specific action that the reader should take" (Krum, 2013). They are used to vote for a politician, join a party, donate to a charity, or just buy a product. Anyway, people are more skeptical than informative and explanatory about persuasive infographics, because it is evident to them that they acknowledge the intention behind the organizations.



Figure 2.11: Uncle Sam "I Want You for U.S. Army"

Source: Wikipedia

3. Infographics Advertisements

People want to compare different brands and make the best buying decision effortlessly. With a side-by-side contrast, infographics are perfect for established brands to demonstrate why their products are inferior to their competitors. For new brands or products, it is essential to tell their potential customers who they are and what they are offering in a few seconds.

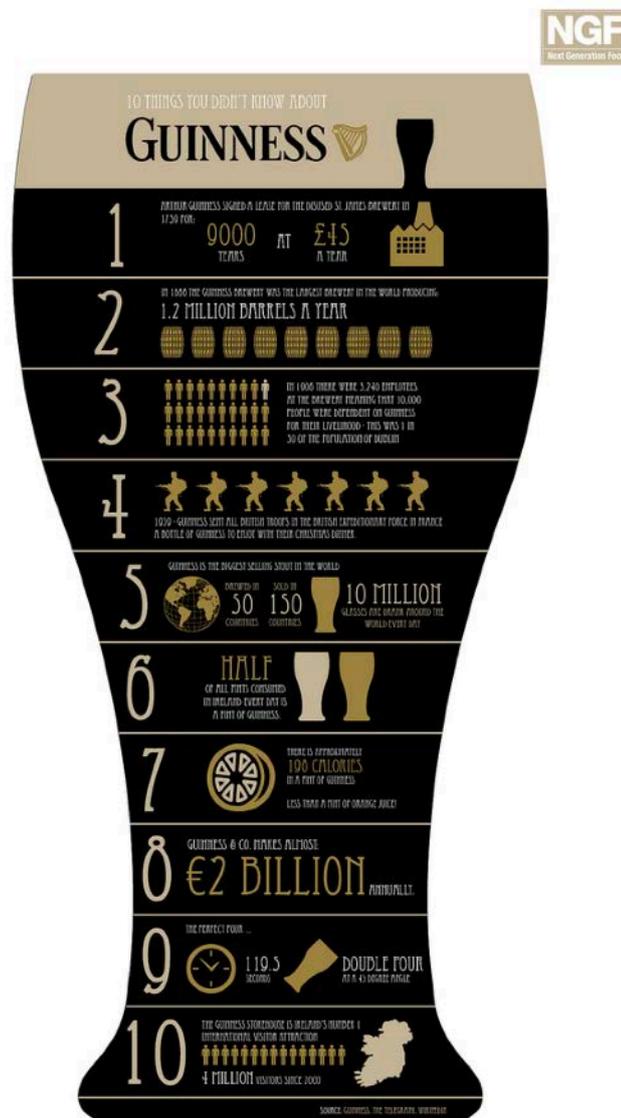


Figure 2.12: 10 Things you don't know about Guinness

Source: Next Generation Food

4. PR Infographics

For its various purposes, PR infographics differ from advertisements. They concentrated more on establishing brand awareness and brand loyalty. PR infographics tell stories much faster than texts. A colorful, stand-alone image attached to the pitch email can easily catch the eye of journalists and interest them. It is a popular strategy for PR professionals to send emails from organizations to the media through press releases and the length of the press release is considerably decreased due to the information overload.



Figure 2.13: "Avengers, Assemble"

Source: Visual.ly

2.4 - How Infographic Works and Why our Brain Loves it

2.4.1 - The Rules of Visual Perception

Infographics work by triggering our visual perception to process images efficiently. This happens because humans are pattern recognition machines. To survive, individuals needed to see a situation and react appropriately in few seconds. Visualizing information pushes into this capacity to recognize patterns and considerably speeds up information comprehension. By looking at patterns and trends, one can look at a graph of information submitted and rapidly comprehend it. This is a much quicker method of understanding data than learning figures, understanding math, and then considering how figures connect in our mind. The capacity of humans to rapidly see patterns and trends is the main reason why information visualizations are so strong as infographic layout parts. However, no image of any kind causes sensory understanding in an intended manner. Indeed, some kinds of pictures backfire. For instance, overuse of color may render an infographic unreadable. The desire to fill the empty space, a prevalent psychological trend, contributes to a missed infographic signal. There are many ways to abuse infographic design and some of them are very prevalent. In brief, it must follow the rules of visual perception for an infographic to function as designed. There are three types of them:

- *Unconscious Regression*
- *Gestalt Perception*
- *Perceptual Constancy*

Unconscious assumption informs us that people will make judgments and conclusions of infographic from incomplete information, depending on their past observations. Think about what is already known to your audience and who they are.



They're going to model themselves on anything you're showing them. If there is a conflict, misunderstanding will result.

Gestalt translates both as "pattern" and "whole". The concept of gestalt seeks to clarify how people perceive separate visual components as wholes. According to this hypothesis, there are eight primary variables that determine how our visual perception understanding automatically group elements into patterns:

1. *Proximity* - items close to each other are interrelated.
2. *Similarity* - linked to comparable artifacts.
3. *Closure* - it perceives unfinished items as full.
4. *Symmetry* - symmetrical objects are in the same group.
5. *Common Fate* (or common motion) - objects moving together are related.
6. *Continuity* - no matter where it is, the same object should look the same.
7. *Good Gestalt* - a bias for frequent, easy, and organized models.
8. *Past Experience* - elements appear to be viewed from previous knowledge according to an observer.

Perceptual constancy, also called Object Constancy, tends to view familiar items as standard in form, size, color, and position regardless of changes of perspective, distance or illumination. The impact tends to correspond to the object as it is or is assumed to be, rather than to the actual stimulus. The perceptual consistency is responsible for the ability of objects to be identified under different conditions that appear to be "taken into account" during the reconstruction process.

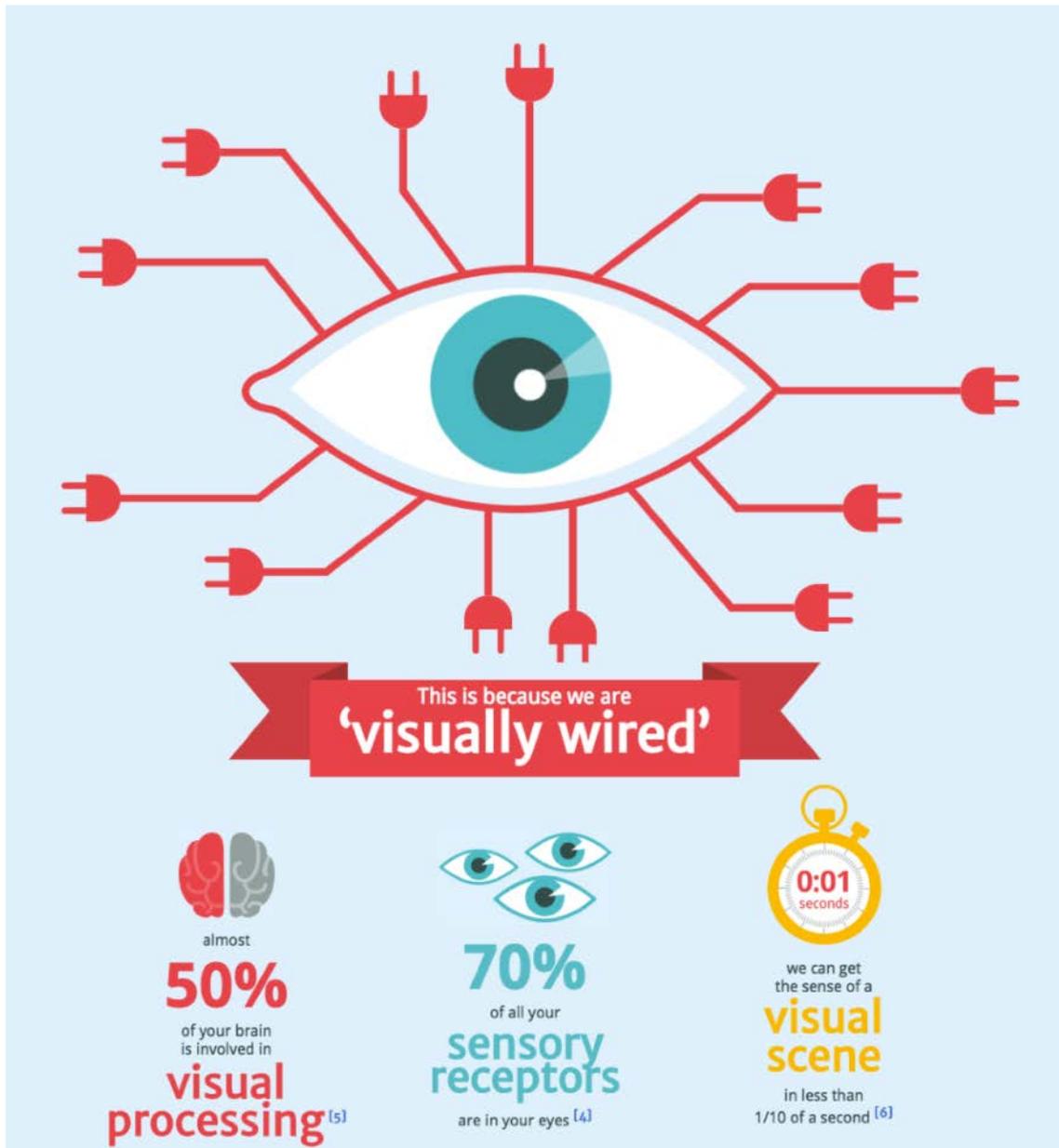


Figure 2.15: This is because we are 'Visually Wired'

Source: NeoMan Studios

The main reason why the human brain craves infographics is that 70% of the eye's sensory neurons are "visually wired" (NeoMan Studios, 2014). In less than 0,1 seconds, the eye can perceive a visual scene. Visuals are consumed much quicker than text. For example, most traffic signs are simple visuals rather than texts, because the message must be transmitted to drivers quickly enough to react faster and drive safer.

Second, visuals facilitate the assimilation and understanding of information. Levie and Lentz (1982) carried out 46 experiments in order to compare people's memory and understanding between the text in the picture and only the text. In one experiment, a group who has followed direction with illustrations performed 323% better than a group without illustrations.

Thirdly, visuals are more efficient. According to research carried out by the Wharton Business School (2014), presentations with impressive visuals have a 17% more opportunity to convince people of what is being presented.

Fourthly, visuals improve the capacity of people to recall their old memories. People remember 80% of what they see and do, but only 20% of what they read and 10% hear (Lester, 2006). This phenomenon is also known as the impact of image superiority. According to Bertin (1983), all the symbols around us may be split into two main sign systems. The first set of signs linked to auditory information are music, mathematical symbols, and natural language. The second system consists of visual indications, mainly visuals, and illustrative representation. Four years later, Paivio's (1987) hypothesis of the brain was introduced by Bertin and a *Dual Coding Theory* reported, which demonstrate that the working memory was based on two fundamentally distinct data types, namely *logogens* (representation of language information) and *imagens* (handling of sensory information). In other expressions, graphic input joins the visual system and, together with sound information, is processed through logogens constructions. The systems are heavily interconnected but distinct. The most revolutionary concept is that humans can "think" visually.

But, most significantly, combined writing and images are more efficient than either isolated and contribute to a greater understanding of data. Visual and verbal memory structures create cross-links in this situation and logogens with imagens are handled at the same time. A meta-analysis concerning the impacts of text illustration was carried out by Levie and Lentz (1982). They

found that graphics enhanced knowledge of visual material in 98% of the case studies. Programmers, teachers, and communicators should, therefore, make use of the hybrid of visual and natural language to benefit greatly from multimedia presentation, blogs, infographics and instructional material (Ware, 2004).

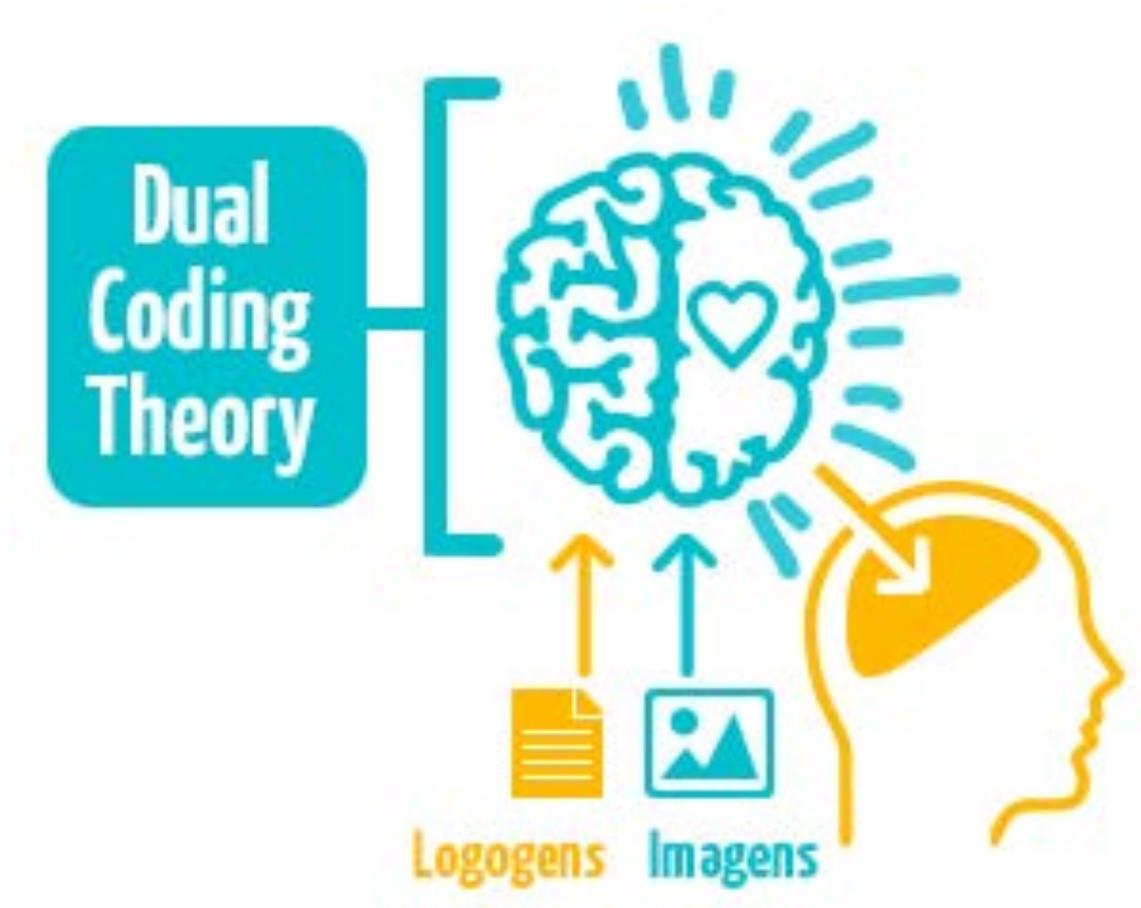


Figure 2.16: Dual Coding Theory

Source: *My Simple Show*

2.4.2 - Infographic Priorities

Anyway, by definition, all information graphics are aimed at communicating information. What differs is the purpose for doing so and understanding this purpose is what determines a graphic's priorities.

According to Jason Lankow in his latest book "*Infographics: the power of storytelling*", infographics are shaped by three priorities which are useful to understand the proper approach to use in case of Academic/Scientific, Marketing or Editorial interpretation.

- **Appeal**

In a world of information overload, how do you appeal to an audience? By *design*. Let's take the example of the extraordinary design of Apple. As exhorted by Steve Jobs, excellent design can not only appeal to an object, it can also cause an emotional reaction. It's not enough to make your content visual; you have to make it interesting visually.

- **Comprehension**

It says that individuals learn best with one of three kinds of stimulation in the understanding of data: visual, auditory, and kinesthetic or tactile. This is because visualization contain certain features called preattentive attributes, which is very rapidly perceived by our eyes and our brains process with extraordinary precision. Color, for example, is one of several preattentive attributes.

- **Retention**

The third advantage of communications using infographics is their capacity in helping people retain information, as the graphics can extend the scope of our memory systems. Visualization do this by drawing on non-visual data stored in our long-term memory immediately and constantly. The human

brain can remember familiar symbols, scenes, and patterns so that we can establish a fast connection with previously stored data and rapidly understand what we see. There are three main memory kinds related to image viewing.

- The *iconic memory* is the snapshot of a scene you keep after looking at something for a short moment.
- *Long-term memory* stores the information we keep for long periods from our experiences.
- *Visual memory* is the most important thing for the processing of visual data, between iconic and long-lasting memory.

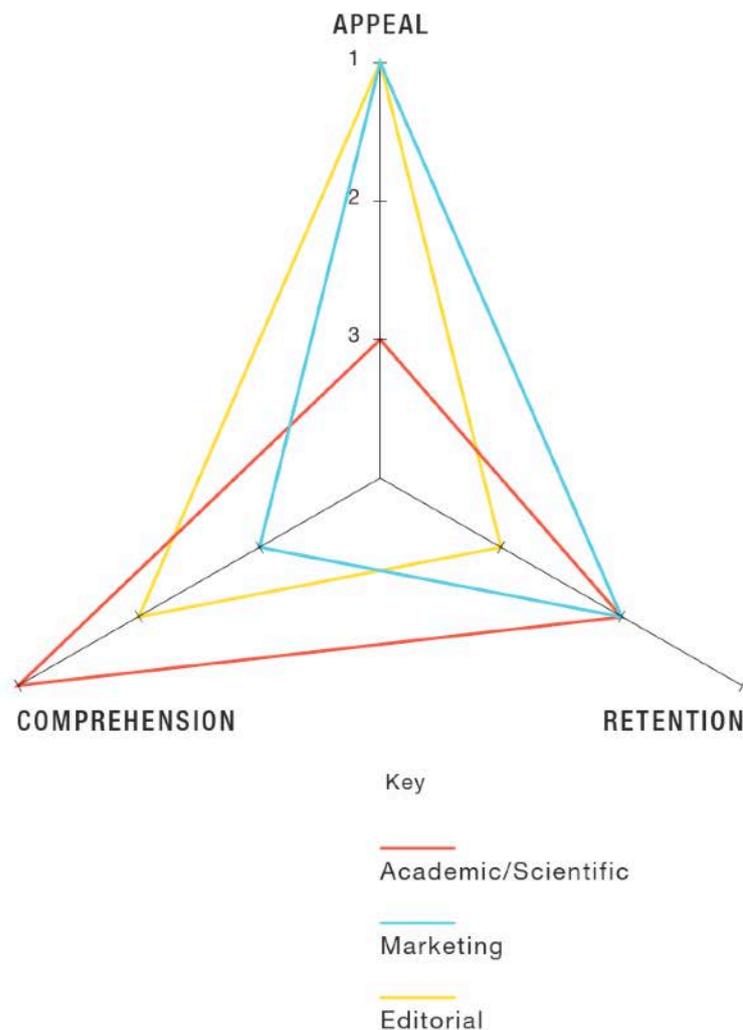


Figure 2.17: Infographic priorities by application

Source: Lankow, "Infographics: the power of storytelling", 2014

2.5 - The Future of Infographics

The downfall of infographics is a common theme. However, infographics are far from extinct. They are alive more than ever before: the infographic's trend is constantly growing. The evolution of its concept, the increase of Google search and the number of infographic development university classes all contribute to the success of infographics. Infographics are irreplaceable and are required to reside on to visualize lots of data.

The future of infographics is characterized by the enhanced of software automation that makes these capacities more available to everyone. This is linked to the awareness of the importance of human creativity in the making of a powerful tale and the personalization of a viewing process. Infographic thinking is everywhere and the path is evident: individuals want to be informed and entertained and they become more conscious of the information. For example, with mobile applications that empower the self quantifying movement, people use the data collected from their regular operations to visualize information to modify their lifestyles and change habits.

Chances are that, for marketing reasons or to acquire more knowledge in a company, you are more worried about discovering a competitive edge in your business communication, whether externally or internally.

Apart from the clear popularity in communication and marketing, according to Anna Vital, infographics will play a bigger role in these sectors:

1. Education infographics

Teachers already successfully use infographics to supplement their explanations in class. However, many still do not have the financial resources or technical expertise to access and create high-quality infographics. However, this scenario is changing with some media companies actively producing educational infographics, following the texts

used in the courses.

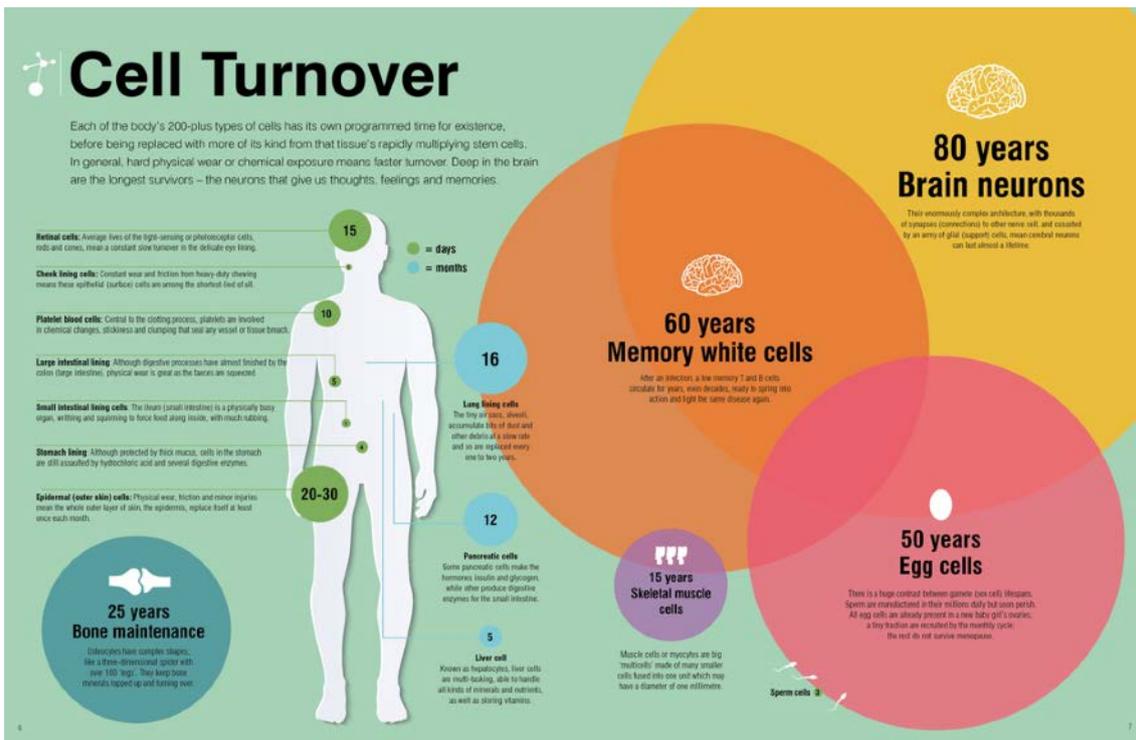


Figure 2.18: Cell Turnover

Source: Jennifer Rose Design

2. Government infographics

In order to raise awareness and be as clear and transparent as possible, governments already use infographics to inform citizens about the state of the country or to advertise an election campaign. For example, think about the video messages that are reproduced before elections explaining to voters how to vote through the simplified use of graphics.



Figure 2.19: Get Out and Vote This Local Government Election

Source: *Tidechange.ca*

3. Data Science

Every year, internet information volumes are doubled. Extracting information from the increased quantity of data will contribute to new infographic demands for more accurate, relevant and compassionate information.

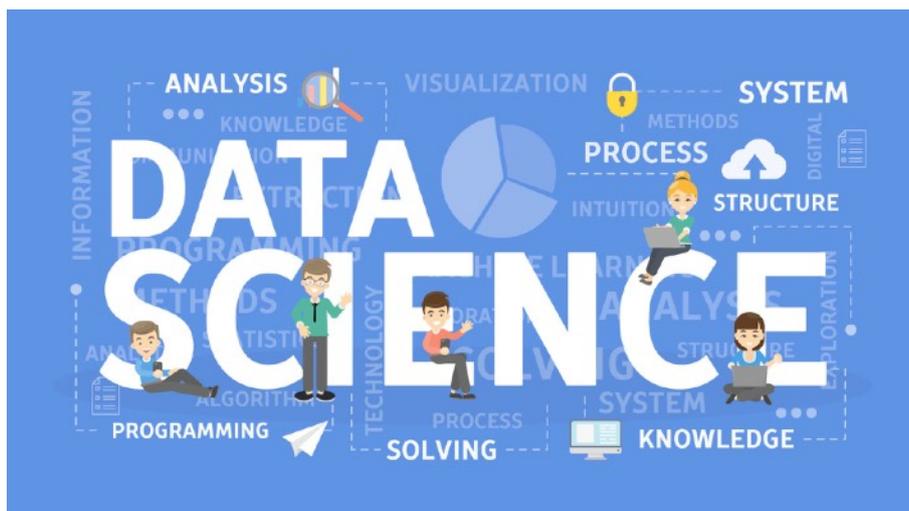


Figure 2.20: What is Data Science?

Source: *DATAQUEST*

Chapter III

3.1 - Why Visual Solution for Business?

How visualization can transform our communication, to provide significant insights and engage the audience? We can create and use tools to further process and show large quantities of info, combined with human creativity, to make the text both relevant and attractive. We need to expand higher accessibility to these tools so that more individuals can create and share infographics. Finally, we must preserve the value of human creativity in shaping the visual world, and continue to empower people to create visual stories that are inspiring, informing and entertaining.

Marketers, entrepreneurs, managers can decrease communication goals by simplifying things to the public, and infographics can assist the entire organizations to communicate important information to internal and external stakeholders, for example:

- Leadership and product characteristics and advantages.
- Business and service process to clients.
- Concepts and strategies for employees.
- Investor company strategy and philosophy.

How can infographics be integrated into a business communication mix? First of all, we need to clarify that infographics are not only used for external interaction: they are good medians of providing marketing messages or advice to customers and prospects, but also efficient in enhancing internal communication. As mentioned in the last chapter, our brains are "wired" for visual communication and our attention spans are undoubtedly being more compressed by the increased of technology and digital media in our personal and professional lives. There are several dynamics that help to establish a

business case for the use of infographics in marketing, content strategy or communication mixes (Smiciklas, 2012). Let's see some of them.

Easy to Use

Readers are consuming most of their information online, a trend that is growing day after day, and it is important to understand the differences in the process of interacting with digital data from printing. For example, on a screen, we tend to read much slower than on books or magazines. The information age also changed the way people process and browse the internet. In order to access more information possible, web users are concurrently connecting to multiple digital channels. This increases sensitivity to contents but creates a lack of attention at a more superficial level. The concept of "attention economy" has become a form of marketing currency and it is one of the by-products of this new online reality. The person becomes conscious of the material, invests a lot of emotional electricity and then chooses whether to continue using that information. Infographics are necessary for an easy-to-use format by displaying knowledge.

Shareability

The "word of mouse" is another important online communication dynamic: the capacity to distribute communication digitally among individuals. Sharing toolbars and widgets are very available tools and popular in websites, blogs, and social networks for web designers. The task is less technical than behavioural when it gets to exchanging information. The CEO of Social Media Explorer LLC, Jason Falls, believes that infographics contain an intrinsic low barrier for transmission. *"With infographics, you're not asking people to spend ten minutes reading eight hundred words of text,"* says Falls. *"If you've got the key point of your message summed up in an attractive infographic, your audience can glance at it and get it... that's faster"* (Smiciklas, 2012). He

continues to claim that information is exchanged because “they are easy to comprehend and don’t take up much of people’s time. If infographics communicate something useful, there is a strong likelihood that people will share them with their networks” (Smiciklas, 2012).

The criterion of “Cool”

Aesthetics is another reason for the efficient communication instrument which is designed infographics. In other words, graphics are different and fun to view, as shown in Figure 3.1. Audience’s competition is intense and individuals are exposed on average to 174 journals each day. That infographics are distinctive and enable organizations to highlight and become more aware of the material they publish.

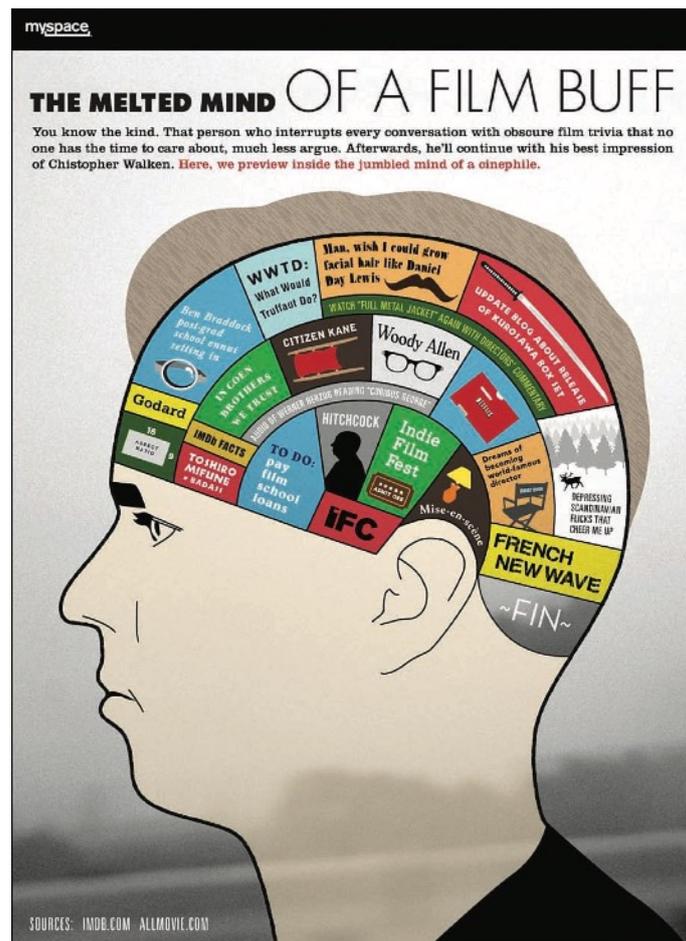


Figure 3.1: The Melted Mind of a Film Buff

Source: Column Five for MySpace

Based upon the ability of our brains to understand these visual patterns instantly, it's much easier to give an audience an insight behind the numbers by presenting statistics in infographic format. Tom Webster, Edison Research's Vice President, strategy and marketing, thinks that information visualization allows us to comprehend greater information in a manner that is not processable for our short-term memories. *"The average person can't remember more than seven numbers or so, but anyone can read the story of one thousand numbers if they are presented in a line graph."* (Smiciklas, 2012).

3.1.1 - How to choose the right vehicle

Depending on the kind of information, organizations can decide to choose two different approaches that can be taken to an infographic: *explorative* or *narrative*.

- **Explorative:** this approach is adopted if the infographic does not require a specific set of readings. The data is structured, but the information can be used to draw different views and conclusions. The reader is invited to study and compare the data in graphs or tables and he has a personal point of view. Data visualization often involves explorative infographics.
- **Narrative:** it can be used when the information is organized in an oriented sequence of reading. The reader is led through the infographic and provides a statement/conclusion with a view of the subject.

EXPLORATIVE	NARRATIVE
CHARACTERISTICS	
MINIMALIST ◦	◦ ILLUSTRATIVE
ONLY INCLUDES ELEMENTS THAT REPRESENT DATA ◦	◦ DESIGN-FOCUSED
SEEKS TO COMMUNICATE INFORMATION ◦	◦ SEEKS TO APPEAL TO VIEWER WITH ENGAGING VISUALS
IN THE MOST CLEAR, CONCISE MANNER	◦ INFORMS AND ENTERTAINS
APPLICATIONS	
ACADEMIC RESEARCH ◦	◦ PUBLICATIONS
SCIENCE ◦	◦ BLOGS
BUSINESS INTELLIGENCE ◦	◦ CONTENT MARKETING
DATA ANALYSIS ◦	◦ SALES AND MARKETING MATERIALS

Figure 3.2: Explorative vs Narrative Infographics

Source: Lankow, "Infographics: the power of storytelling", 2014

As a manager, owner or marketing department that decides to become a more visual firm by using infographics, it's important to understand which format is more suitable to deliver messages more effectively. Infographics communication can use three different types of format: *static*, *interactive* and *motion*. There is no implicated hierarchy or one better than the others because the best way of providing the information that the business wishes to transmit is to determine how efficient this is. The characteristics of each type are useful to comprehend and to recognize that a large number of artistic media can be used within each of the classifications.

1. Static

It is the most popular method in information design and informations are typically fixed. Infographics are most frequently used as a print, web or both version in a static format. The infographic can differ in material but the general volume and form are determined mainly by publication background requirements, like a blog post or a wide-spread magazine. Static information graphics are very efficient at representing rich information in one image, whether it is for a printed publication or a report to shareholders. There are three major types of static infographic content used by companies (Smiciklas, 2012):

- Internal presentation and reports.
- Editorial content for blogging and social.
- Brand-centric content for PR distribution.

One of the major advantages of static infographics is the relatively easy creation of a static content compare to an interactive interface - particularly when the infographic is used by managers to record time-sensitive information or news. This enables the visualization of data in a wider infographic that offers additional details, such as qualitative explanations and even editorial illustrations and texts. The benefit of this strategy is that it enables speakers to direct conduct the audience to a particular conclusion through the messages they convey. After all, the infographic narrative aims at expressing significance and making it easier for the reader to rapidly understand the story with the information presented.

JOEY DONUT'S YEAR IN REVIEW

2011

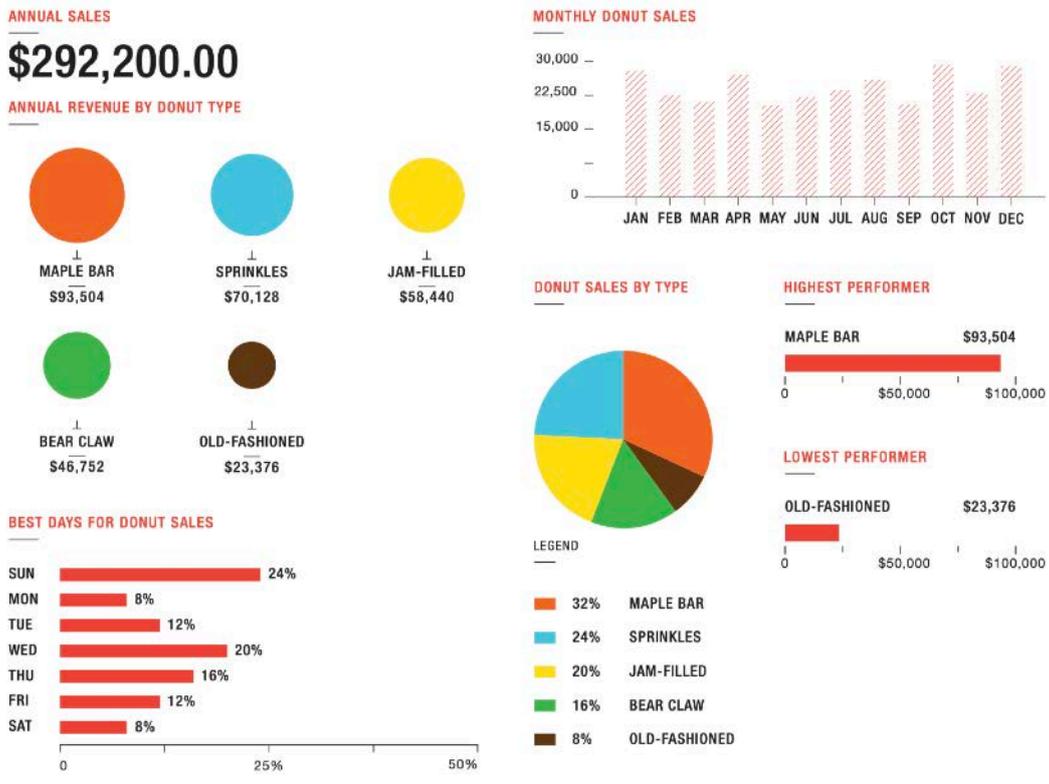


Figure 3.4: Example of Static Infographics

Source: Lankow, "Infographics: the power of storytelling", 2014

2. Motion

Motion graphics are used for animating the content of an infographic. There's something particular about the capacity of a motion graphic to involve individuals other than static or interactive infographics could do. Basically, if there is a voiceover, people can settle back and have the presentation of the story linearly to them. They don't have to decide to interact with information effectively every moment as they would have to with a static infographic. The capacity to mentally relate to the audience via music and information via voiceovers and motion images gives the chance to the brand to transmit signal more persuasively. Because late-stage

changes to an animated video take so much time and are expensive, fixed information is normally necessary, at least when the animation is delivered to video platforms such as YouTube and Vimeo in video player format and synchronize with it. Motion graphics become more common and now it includes HTML5, CSS3, and sophisticated JavaScript databases in Web interactive content, which allows using augmented reality style on top of video. Some of these cutting-edge movement media apps have enormous viral possibilities for their new production methods. For most typical companies, however, the finest way to use motion graphic is to transmit a single linear story to generate a sensory and social attraction involving viewers on various levels.

3. Interactive

This method is especially helpful when large quantities of data are available and the organization wants to produce interactive content that encourages further exploration by the customer. Managers can use the interactive way when they want to enhance the relevance or interest of customer to browse the data. Or they can use interactive infographics to direct someone linearly through a particular story, or to understand a meaning they want to say. This isn't an either/or choice; a narrative/editorial perspective that tells individuals what is important, interesting, or fun to encourage them to read the content and then to find the information they need. Narrative interactive content with fixed information is also an instrument of a content strategy. There are several advantages to using it. Firstly, it may be the lowest costly category within the interactive infographic format because it only needs fundamental functionality to be programmed, yet it enables for a fascinating presentation of the brand. Furthermore in a content marketing strategy, using an interactive infographic can bring several advantages because it can be faster than more complicated data visualizations.

These overall infographic formats are at the core of real business application. In any cases, organizations can use any number of these formats and choose the formats that fit better with the budget of a particular project. Nevertheless, with this fundamental insight into each layout, together with some advantages and shortcomings for each layout, managers can start critically thinking about what strategy can best support a true company implementation that requires priority in interaction or advertising.

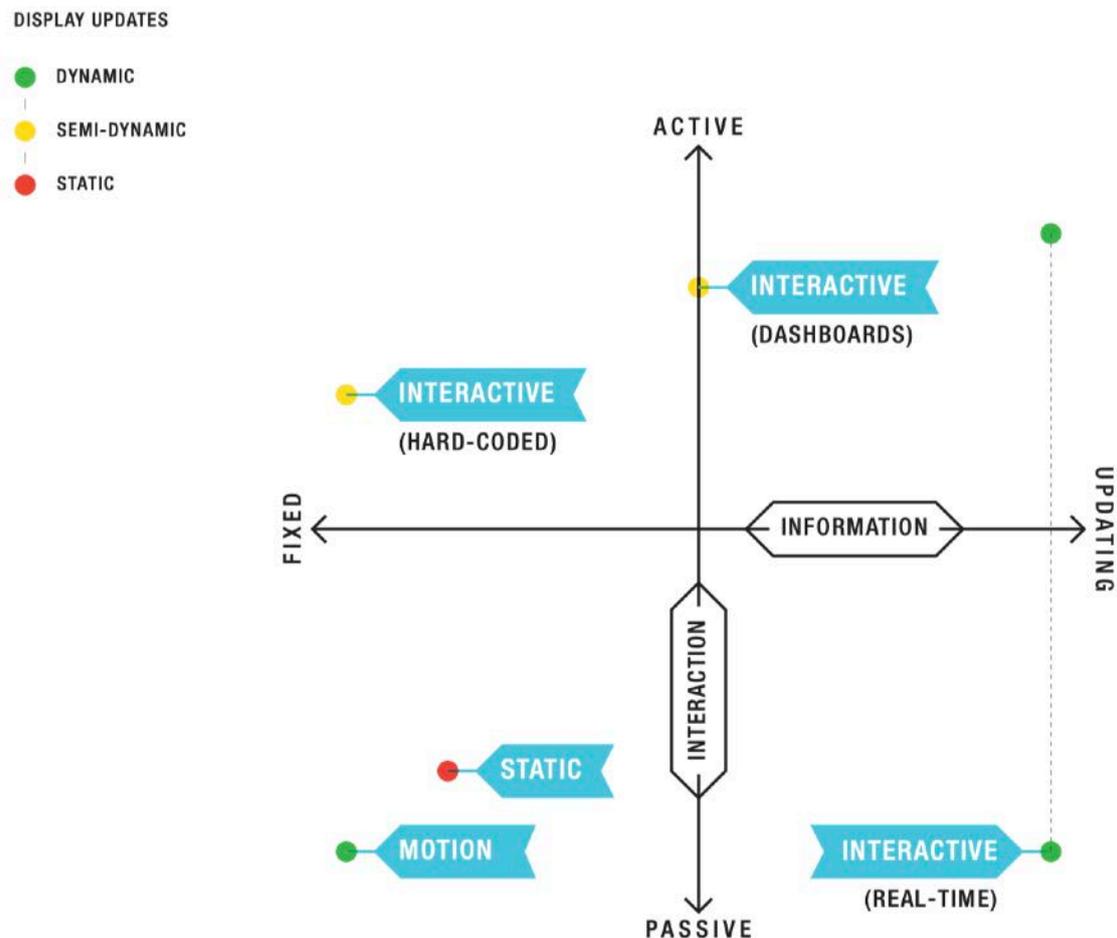


Figure 3.3: Three different format of infographics: Static, Motion, Interactive

Source: Lankow, "Infographics: the power of storytelling", 2014

3.2 - Infographics as an Internal and External Communication Tool

In short, the brand's value is linked to the perception of the audience. The experiences of the audience with the brand are based on these perceptions through various touchpoints. One of these touchpoints is communication and how this affects the marketplace opinions. The goal of an organization should, therefore, be to create a communication mix that contributes to building and sustaining positive audience awareness. To accomplish this goal, infographics can be used to create awareness and promote engagement, emphasize personality and showcase competence and leading thinking. It is essential to know that infographics must be incorporated into a general plan for communication and not treated as an independent tact.

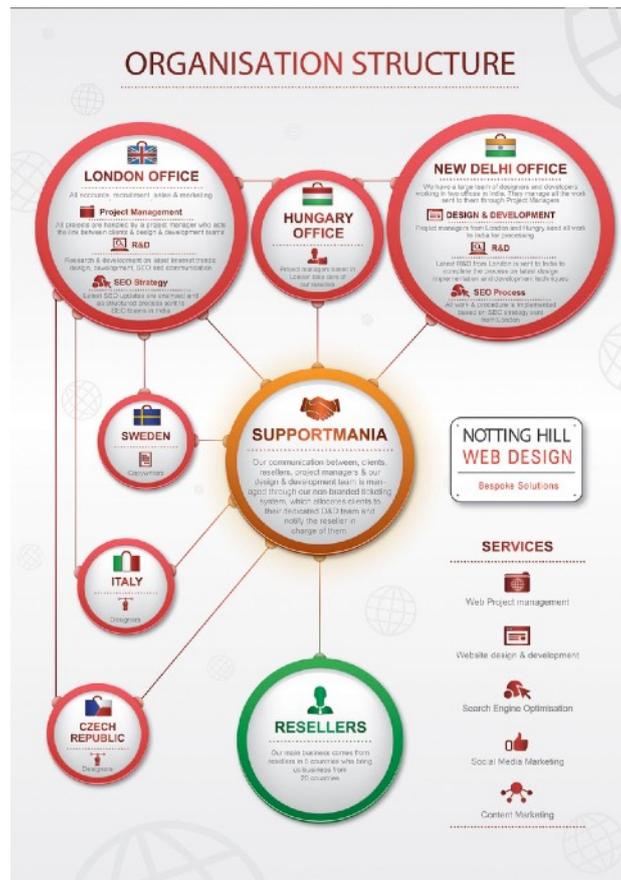
Internally

How companies or non-profit organize their staff, processes, products or services is likely to affect how stakeholders are interrelated with organizations, both internally and externally. Infographics are an efficient way in which clients, prospects, and employees can explain hierarchies that can be articulated in groups.

- *Structure Organization and Relationship*

Internally, it can be useful to see how functions fit into the more general organizational picture by presenting their employees, especially in large, more complex societies, with a visual representation of company structure. The use of infographics to communicate the hierarchies of companies helps clients navigate the organizational landscape and thereby increase the probability of positive experiences and better management. In addition, infographics help users to visualize the connection between people, concepts

or entities, inspire debate and promote the understanding of the



relationships important to the company or industry.

Figure 3.2: Organization Structure

Source: Notting Hill Web Design

- *Pricing Levels*

In the assessment of product or service value, pricing is often one of the main variables which customers take into account. Pricing can be a harmful topic, whether online or offline. Pricing can also influence how stakeholders perceive the brand. Convolved, complicated and confusing price schedules could lead to incomprehension and eventually to depletion of brand confidence. Using infographics to communicate the price, customers can more rapidly and easily comprehend value proposal, reduce buyer pressure, and create positive willingness.

- *Ideas and Concepts*

Since conceptual hierarchies often involve several complicated layers and links, it can be hard to explain using text alone. In this way, infographics are a possible way to express hierarchical concepts and using these kinds of visuals to explain complicated concepts speeds up comprehension and stimulates debate that becomes much more useful than just a written report in guiding decision-making.

- *Business Model*

Business models can also describe a broader range of ideas or concepts. They are suitable for illustrating particular relations, design or structure, procedures and tactics, plans or policies. The use of infographics to develop or explain a business model provides a high-level panorama to the public, which can serve as an independent explanation or a catalyst for further research and dialog. What are the infographics that make them important or attractive for business models? Andrew Harnden, Senior Strategy Director at Blast Radius, a worldwide digital agency, considers infographics to be a sustainable communication tool because it enables extended groups of stakeholders to access business models more easily: *“Infographics can be a great storytelling device. The visual component is compelling, helping groups focus and connect to information more easily. Infographics create an inference of emotion that guides audiences to the significance of the concepts being presented”* (Smiciklas, 2012).

Harnden also recognizes that infographics have certain limitations, especially when used for complicated purposes. He believes that infographics are shrinking and try to view each detail of a model to such an extent that they are counterproductive. These extensive visualizations do not distill the significant information nuggets that must be passed to the audience. The fact that an

infographic could end up bridging the dialog with the audience still has some value. It's important to recognize that in these cases infographics still play a major role as a (what Harnden calls) "communication step-stone" (Smiciklas, 2012).



Figure 3.3: Old Marketing vs New Marketing

Note: Own production. Data from Mark Smiciklas, "The Power of Infographics", 2012

Externally

Infographics are used by more and more organizations in order to connect with their audience and raise their brands above the crowded marketplace. They enable people to consume and process information within a very short period of time. The easy-to-use and share infographics give them its efficiency as marketing tools. Infographics are usually included within the scope of **Content Marketing** and **Visual Storytelling** by organizations that use them for communication with their audiences in a marketing capacity. Marketing has evolved from traditional one-way publicity messages aimed to promote some information rich-content to promote bidirectional discussions with the customers. Technological developments have enabled contemporary customers to limit advertisement posts by spam filters or merely by pressing on 'unfollow' button. By this way, consumers today can control better the information they want to know; as a consequence, the scheduling and publication of appropriate material become a significant component of the communication strategy of an organization. Jesse James Garrett, an information and experience designer, say that *"the single most important thing most websites can offer to their users is content that those users will find valuable."* Basically, *content marketing* involves the use of information to communicate with audience and to create relations without using hard-to-sell's method. This communication tool utilizes instruments like infographics to meet the information consumers' need. Content marketing aims to educate the audiences and generate knowledge and involvement to the point that consumers buy products or facilities when necessity or desire occurs and facilitate the easy-to-recall brand in their mind. *Storytelling* is one of the most effective methods of obtaining information. Telling stories that exemplify personal challenges creates a consumer-friendly experience. Solutions to consumer problems are always a welcome kind of consumer content. Let's see both approach in details.

3.2.1 - Content Marketing

One of the most important facts concerning the recent increase in the popularity of infographics is that it coincided with a new phenomenon: the growth of content marketing. Market is saturated by an excess of data transmitted daily from different sources by businesses and new strategies are under development to engage clients. One of the most affirmed definitions of content marketing is given by the Content Marketing Institute, describing it as "*a strategic marketing approach focused on creating and distributing valuable, relevant, and consistent content to attract and retain a clearly-defined audience and, ultimately, to drive profitable customer action*" (Content Marketing Institute, 2015).

The intention behind content marketing is content designed to gain new and current audiences. "*The more editorial the content is, the broader its audience tends to be; conversely, the more brand-centric the content, the more targeted its audience usually is*" (Smiciklas, 2012). Good content marketers know that clients are most probable to come from a committed crowd. It relies on the idea that readers or viewers will benefit from the brand when they find the content relevant. So, the fundamental goal of this method is to engage the readers. Moreover, it implies that every brand would benefit because clients see it as a sector's specialist or as suppliers of information on complicated or known problems. And, although the audience members won't finally purchase anything, the building of a non-customer fan base remains of fundamental importance: people who might someday refer a friend or family member to the brand or even more share brand's content online. This kind of win-win scenario is what relive in a good content marketing strategy. In this perspective, infographics are seen as an efficient marketing approach. Since the cost of an individual's attention is continually rising, infographics have been

Content is king.

Bill Gates

discovered to be highly helpful tool for grabbing interest. For this reason, great infographics attract viewers to interact with the content. They convey the message quickly, but the easy way that individuals can communicate it online via multiple social media is their biggest characteristic. In addition, infographics can be reused, recycled, restored or republished on the web. The convenience and velocity with which they allow communication are also increased the use of content marketing infographics. Today, in terms of content development and distribution, companies on average are spending 25% of their marketing budgets.

Content marketing is currently an essential component of marketing communication. During the years, consumer's behavior has undergone many changes among the communication process and today sale is no longer at the top of the buyer journey (Captora, 2014). The Content Marketing Institute reports that successful content marketing *"makes a person stop, read, think and behave differently"* (Content Marketing Institute, 2015).

There are several reasons why content marketing is expanded (Lieb, 2012):

- Cheap content marketing tools.
- Cost of development and distribution of content has decreased.
- More than ever content from corporate sources are accepted.
- The increasing interest of online information search.
- All-embracing and varied social media marketing possibilities.
- Ability to monitor website traffic statistics simply and carefully.

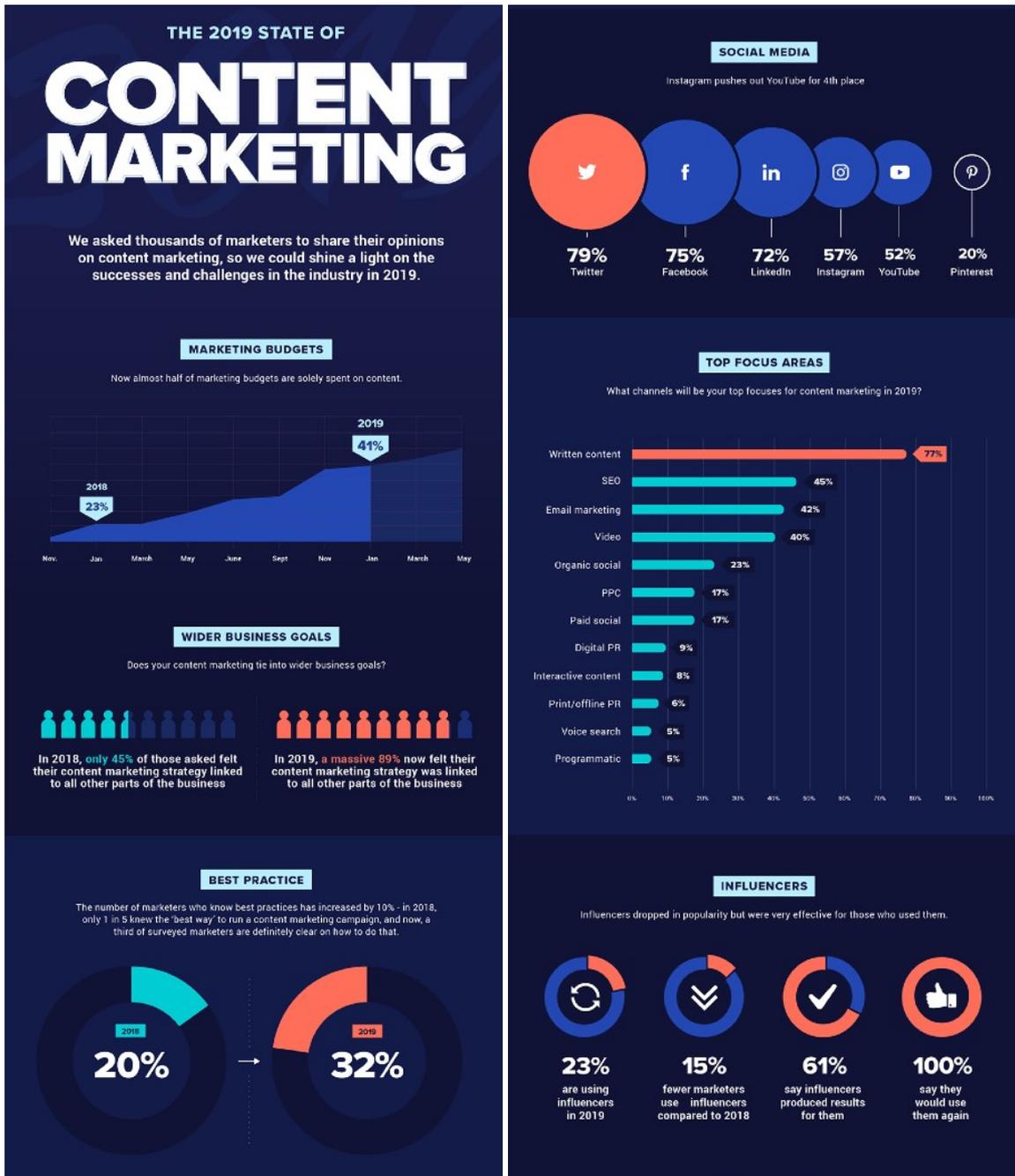
Compared to the forms of content marketing used a few decades ago, modern technology and online platforms are the fundamental bases of content marketing strategy. The principle of this method is creation and distribution of *"independent content that transcends all egos and puts the audience in pole position"* (Postma, 2014), which is far more effective than the hard-line selling of thorough, often intrusive and counter-productive sales efforts.

In marketing literature, content marketing is presented with model 3E "*Educate, Engage and Entertain*" (Pulizzi & Barret, 2010). Furthermore, it presents other main characteristics (ADMA, 2016):

- "Helping, not hyping". Emphasize on showing by example with the purpose to provide meaningful information rather than just provide superficial information as a promotion for sale.
- Stimulate "storytelling" to get the brand closer to the target audience.
- Focus to build a long-term relationship.
- Stimulate consumer to join with the brand and the company.

As mentioned above, content marketing refers to the marketing communication method of "*creating and distributing relevant and valuable content to a clearly defined customer target group*" (Content Marketing Institute, 2015), in order to increase brand value and provide the company's management. It is, therefore, the best approach to achieve the brand image desired. A method designed to "*increase brand awareness, encourage customer loyalty and brand credibility and generate new business*" by delivering applicable and appealing info to destination organizations that suit with their field of interest (Schijns, 2008). Besides, the goal of content marketing is not only to provide exciting, interesting information but to generate valuable content to get shared. Reaching this level of consumer engagement certainly means the brand has a high consumer value. Content marketing is hence the key to building a trust relationship, positive feelings, interest and constant interaction between consumers and brands. Brand equity requires that quality products have to be supplied and powerful connections established through an appropriate communication strategy (Aaker, 1991). As Kotler and Keller (2006) defined, it is "*a bridge between the marketing investments in the company's products to create the brands and the customers' brand knowledge*". The brand itself, therefore, constitutes an indicator of the efficiency of the applied marketing strategy (Keller & Lehmann, 2006).

Companies are strongly involved to present the most recent information on different marketing stations to satisfy consumer's interest. They can take advantage of several channels (prints, mobile devices, social networking, etc.), but unlike pure advertising, it relies on storytelling rather than bravado. Or, to put it simply, *“if you want to tell the world that you're a rock star, advertise. If you want to show why you're one, have great content”* (Solomon, 2013).



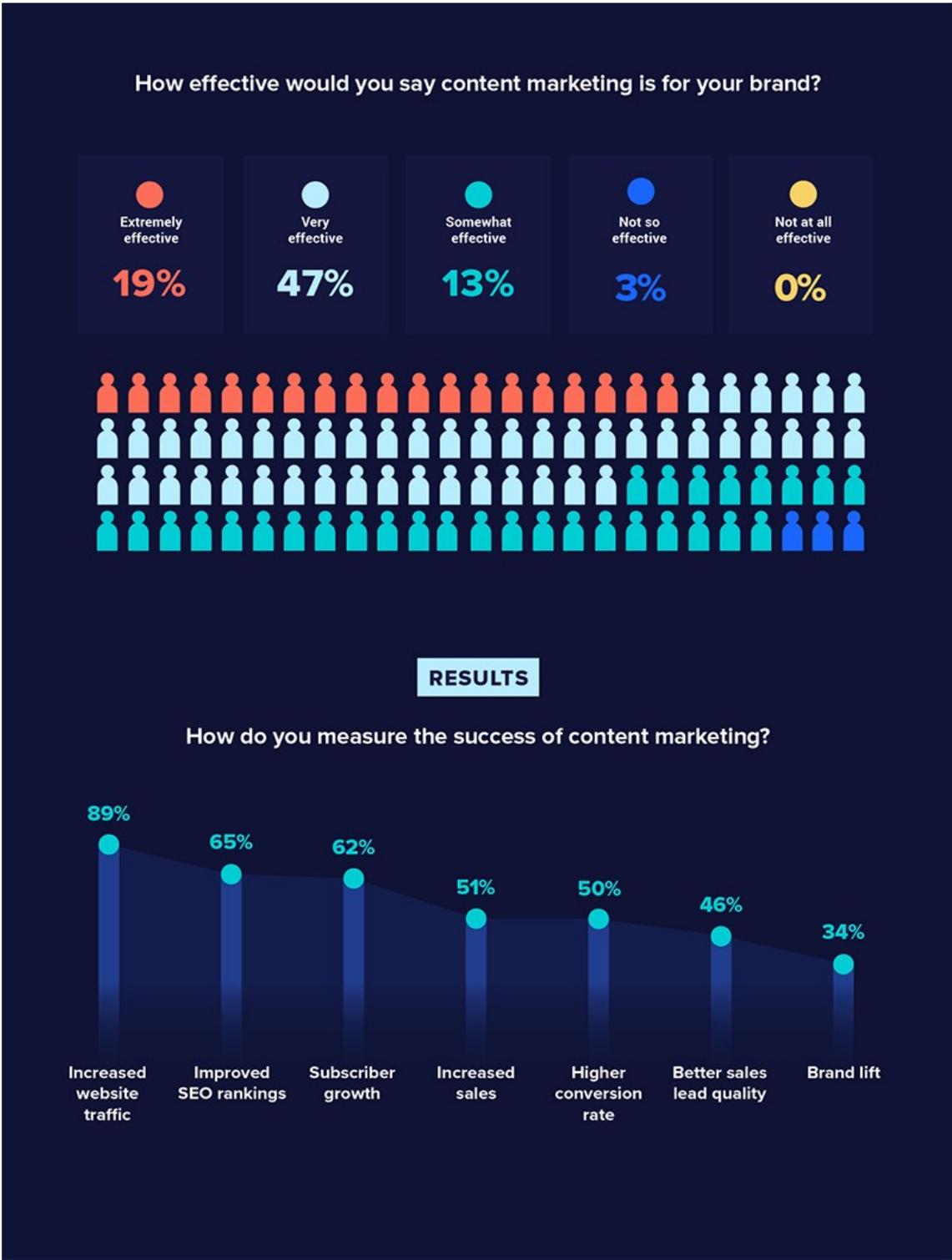


Figure 3.4: The State of Content Marketing 2019

Source: Zazzle Media

Successful example of Content Marketing

BMW Group publishes every year its Annual Report, which includes information on revenues, sales, trends, growth and membership needs from the past year. Reports from previous years were distributed in PDF format, but BMW was worried that not many of its members (or external audience) read them. They develop an interactive way to display this data to encourage their members to read and share the report. BMW created a microsite (with an external apposite link) with clean information visualization and patterns inspired by the BMW sector. Until the annual reports of 2017, reports were many pages of text-heavy sections, graphs and marketing resources. They minimized the text and displayed only the most significant data to keep the reader aware of the key transactions. The site also contains subtle animations and interactivities that involve the viewer.

Interactive Annual Report 2018 is available to this link

<https://annual-report2018.bmwgroup.com/>

Below some example of the same section from the old and the new annual report.

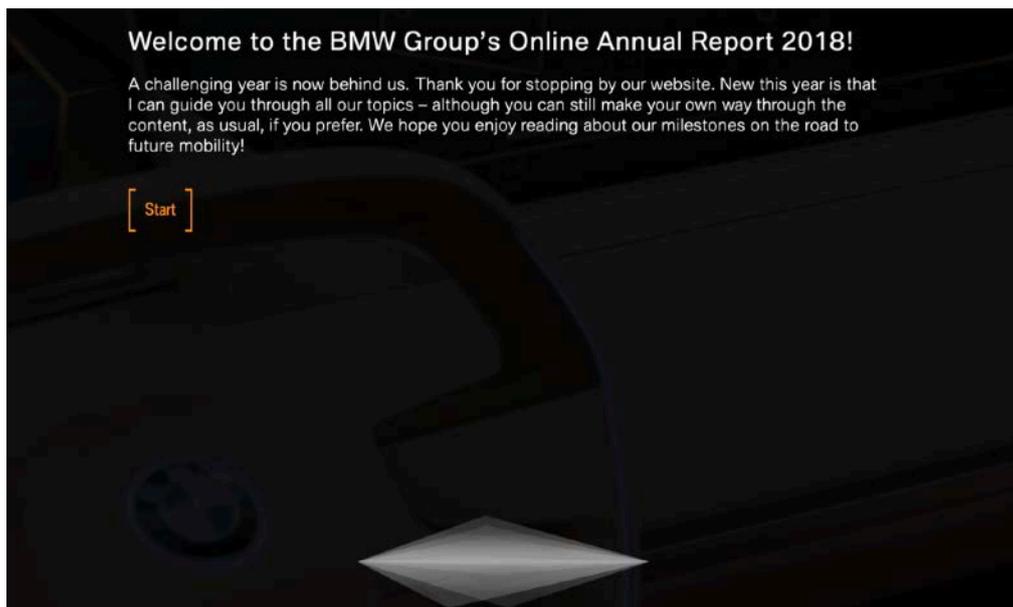


Figure 3.5: Presentation BMW Group's Online Annual Report 2018

Source: bmwgroup.com

Further non-financial performance figures

→ 02

	2014	2015	2016	2017	2018	Change in %
AUTOMOTIVE SEGMENT						
Deliveries						
BMW ²	1,811,719	1,905,234	2,003,359	2,088,283	2,125,026	1.8
MINI	302,183	338,466	360,233	371,881	361,531	-2.8
Rolls-Royce	4,063	3,785	4,011	3,362	4,107	22.2
Total²	2,117,965	2,247,485	2,367,603	2,463,526	2,490,664	1.1
Production volume						
BMW ⁵	1,838,268	1,933,647	2,002,997	2,123,947	2,168,496	2.1
MINI	322,803	342,008	352,580	378,486	368,685	-2.6
Rolls-Royce	4,495	3,848	4,179	3,308	4,353	31.6
Total⁵	2,165,566	2,279,503	2,359,756	2,505,741	2,541,534	1.4
MOTORCYCLES SEGMENT						
Production volume						
BMW	133,615	151,004	145,555	185,682	162,687	-12.4
FINANCIAL SERVICES SEGMENT						
New contracts with retail customers	1,509,113	1,655,961	1,811,157	1,828,604	1,908,640	4.4

¹ Figures exclude suspended contracts of employment, employees in the non-work phases of pre-retirement part-time arrangements and low income earners.

² Including the joint venture BMW Brilliance Automotive Ltd., Shenyang (2014: 275,891 units, 2015: 282,000 units, 2016: 316,200 units, 2017: 384,124 units, 2018: 459,581 units).

³ EU-28.

⁴ Adjusted value based on planned conversion to WLTP (Worldwide Harmonised Light Vehicles Test Procedure).

⁵ Including the joint venture BMW Brilliance Automotive Ltd., Shenyang (2014: 287,466 units, 2015: 287,755 units, 2016: 305,726 units, 2017: 396,749 units, 2018: 491,872 units).



ANNUAL REPORT 2018

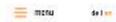


Figure 3.6: BMW Automobile deliveries. Old vs New

Source: *bmwgroup.com*

BMW GROUP TEN-YEAR COMPARISON

		2018	2017 ¹	2016	2015
DELIVERIES					
Automobiles	units	2,490,664	2,463,526	2,367,603	2,247,485
Motorcycles ²	units	165,566	164,153	145,032	136,963
PRODUCTION VOLUME					
Automobiles	units	2,541,534	2,505,741	2,359,756	2,279,503
Motorcycles ²	units	162,687	185,682	145,555	151,004
FINANCIAL SERVICES					
Contract portfolio	contracts	5,235,207	5,380,785	5,114,906	4,718,970
Business volume (based on balance sheet carrying amounts)	€ million	133,210	124,719	123,394	111,191
INCOME STATEMENT					
Revenues	€ million	97,480	98,282	94,163	92,175
Gross profit margin	%	19.0	20.3	19.9	19.7
Earnings before financial result	€ million	9,121	9,899	9,386	9,593
Earnings before tax	€ million	9,815	10,675	9,665	9,224
Return on sales (earnings before tax / revenues)	%	10.1	10.9	10.3	10.0
Income taxes	€ million	2,575	2,000	2,755	2,828
Effective tax rate	%	26.2	18.7	28.5	30.7
Net profit for the year	€ million	7,207	8,675	6,910	6,396

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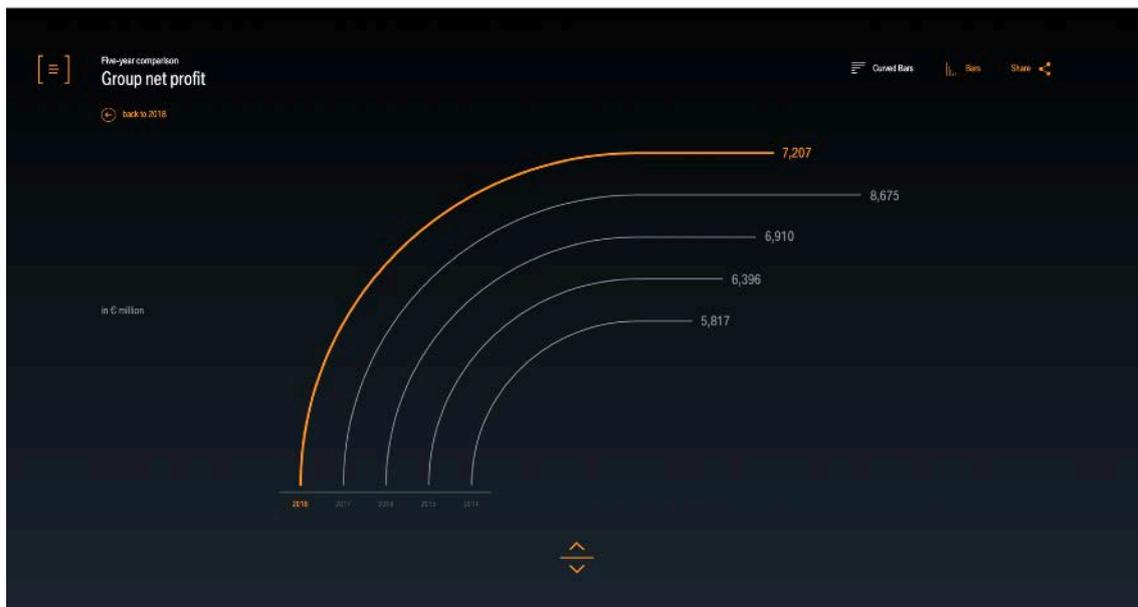


Figure 3.7: BMW Five-year comparison Group net profit. Old vs New

Source: *bmwgroup.com*

3.2.2 - Visual Storytelling

Despite being such an ancient practice, storytelling is still used today for its ability to convey emotions and to engage users with characters and paths that people can identify with. Storytelling is one of the most effective forms of branding and is often referred to as one of the primary elements of content marketing. More and more today, we hear about visual storytelling as a strategic asset fundamental for marketing strategies and corporate communication, especially because of differentiation from competitors and emotional connection with customers. Emotional branding is a step-by-step marketing approach that has the capacity to increase revenues and awareness on customers. Typically how a person feels about a brand decides if he will buy it or not. A brand is a matter of perception (i-SCOOP, 2018). When you say a story that represents human challenges, you create an experience that reflects on customers.

With the advent of social media with a strong visual component such as Facebook, Instagram, Pinterest, and Snapchat, brands have begun to tell themselves more and more often through short moments that, put together, give life to a real strong. The same thing users do by updating, every day, their profiles on social networks, so the practice of "telling stories through images" has spread. Visual storytelling is defined as *"the use of images, videos, infographics, presentations, and other visuals on social media platforms to craft a graphical story around key brand values and offerings"* (Walter, Gioglio, 2014). Visual storytelling makes full use of the power of images to involve the public at a deeper level to guarantee them an immersive experience of identification and empathy. The stories, thanks to their simple structure, have the power to give meaning to what surrounds us, showing a clear connection between events to be easily internalized by the viewer. Visual storytelling is not just a stunning production of images, videos, and other visuals. It's a form of thinking. To success, visual storytelling program has to be in perfect line with

the business goals. To achieve these goals, companies need to understand their future and where and what they want to be in a couple of years. This means identifying strengths, weakness, and opportunities that will help to decide what extra resources are required.

Visual storytelling, therefore, requires the knowledge and application of specific operating rules to create visual stories. By respecting these rules and their implementation strategies, visual narratives will allow achieving fundamental objectives for the business and personal communication. In essence:

- It promotes faster learning;
- It can be achieve greater engagement, more evocativeness, and universality.

Steve Olenski (2015), opinions expressed by Forbes Contributors, suggests brands that use storytelling as part of their marketing strategy the following benefits:

- Storytelling is the perfect platform to show the personality of your brand. Not through sales, of choice, but through the tales that are made by the product itself, by the user or a mixture of the two. Never be scared to allow your brand's character through storytelling noisy and transparent.
- Bring your brand to the lead. Damien Dally, Country Manager Jeep U.K. says, *"Storytelling in the automotive industry has been key in marketing campaigns for some time, especially since the advent of interactive/ social media. This can be something metaphoric, yet simple, like a journey, to something more in-depth, with use of roles and a plot for the more adventurous. Portraying your brand as the protagonist, in either case, is essential"* (Olenski, 2015). This ensures that the brand is inherently related to the meaning of the story.

- Evoke the emotional result. Storytelling itself may be the best way to reach customers through an emotional way. Tell history that is true or at least based on true stories and tells it in a way that brings out emotions and sentiments.
- Keeps customers coming back for more.

Successful example of Visual Storytelling by Killer Visual Strategies

The Client Goal

The Washington Global Health Alliance builds partnerships among local, regional, and global health organizations, and it promotes knowledge of worldwide health needs and benefits. In the summer of 2015, they were preparing for the launch of their upcoming Washington Global Health Landscape Study a focus on the state's international health organizations, projects, and implication. In addition to the traditionally text-based report, they needed a printed, web-based and visual communication version to tell the story differently. During a study launch case, the print version would be distributed while the infographics needed to be downloaded and shared by organizations and slides required to be presented at the conferences.

The Solution

Killer Visual Strategies has developed 4 individual trifold brochures with 4 major stories that allow uniform content such as analysis and a task declaration throughout all models. Throughout a careful analysis of numerical information, they could simplify large data sets. The design manual of WGHA affected the pallet and fonts used for all elements. With a clean aesthetics employed, information and numbers were the most important takeover. Twitter's infographics were a big success, with photos of the trifold and web graphic pictures retweeted by people.



Figure 3.8: Initial project
 Source: Killer Visual Strategies

Conclusion

Today it is more difficult for companies to reach their target audience with traditional communication tools because of the change in media culture and significantly increased competition due to globalization. A greater number of professionals in communications are turning to visual content in pursuit of audience attention, as research results show that content understanding and memory are improved. The concept of visual content is not limited to images and linked text in social media. Instead, researchers and practitioners apply a broader perspective, which notes an increased visual presence in their daily work. The eminence of information design should be leverage by business communication. Infographic is excellent to analyze large figures or a large amount of information into consistent and eloquent material. Business in the infographic can assist:

- Simplification of communication and message clarification.
- Making the content of communication appealing and convincing.
- Specific company issues answered.
- Helping decision-making in leadership.

Which business the company is in doesn't count, because information can be applied in every industry. A local supermarket, an online retail, a government department, a venture investment company or a film company could use this form of communication in an internal or external interaction. Every business needs to communicate useful data to its workers, shareholders, and clients. Data visualization methods and infographics can make the information attractive and meaningful for businesses.

To get the right infographic, marketers have to respect some design rules as, for example, no include confused marketing elements, unnecessary illustrations, big weird fonts or list of bullet points. On the other hand, if

practices are done with the finest methods, the main advantages of infographics can be summarized in a few points:

- *Handle the appropriate topic.* Infographics benefit from the visualization of data, which helps people consume and understand information more quickly, but take care that it's not ideal for all subjects.
- *Be visually impressive.* Comprehend the color's psychology and understand the appropriate color schemes that need to be used to evoke certain emotions that the infographic attempts to stimulate.
- *Think out of the box.* Why do individuals have to waste time to read an infographic of an opinion already discussed many times before? The infographics must be more fun, understandable or persuasive respect the previous original text.
- *Build credibility with authentic sources.*

In the age of “infobesity” and increasing digital noise, infographics can be managed as an interesting marketing tool, helping already affirmed concept as content marketing and storytelling.

We now live in a world where information is potentially unlimited. Information is cheap, blit meaning is expensive. Where is the meaning? Only human beings can tell you where it is. We're extracting meaning from our minds and our own lives.

George Dyson

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