UNIT 4

Graphic Design for Marketing in Industry 4.0

Co-funded by the Erasmus+ Programme of the European Union

Project number: **2018-1-ES01-KA202-050289**
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Contents

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Introduction

In this document, a first draft of all materials of Unit 4 of the CreO Training course are presented.

All materials are also available separately in the Google Drive folder as drafts.

Please use this document for review and commenting. Thanks!

Please note:

- The Wikipedia articles proposed will be changed for alternative sources.
- Activities 4.2.1., 4.3.1 and 4.3.2 will be completed soon, at the moment the supporting materials are not ready. We will upload them as soon as possible.
- The article at activity 4.2.1 is only partly inserted in this document (6 out of 26 pages). The full article is available separately.

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Overview of Activities per Unit

Unit No: 4 Graphic Design in Marketing for Industry 4.0

No	Name of Activity	Basic Knowledge	Skills	Responsibility & Autonomy	Time (h)
Subunit No: 4.1 Illustrating Industry 4.0					
4.1.1	**Principles of industry 4.0**	- Industry 4.0 elements necessary for following actvities			1
4.1.2	**Introduction to the topic of infographics**	- elements of infographics	- create 1 type of infographic suitable for industry 4.0	- use creative approaches to illustrate complex information suitable for internal and external marketing	0,5
4.1.3	**Best practice examples of infographics**	- elements of infographics	- illustrate the principles of industry 4.0 using infographics		1
4.1.4	**Infographics and industry 4.0 (exercise)**	- principles of industry 4.0 elements of infographics	- create at least 3 different types of infographics suitable for specific kinds of content	- identify new potential fields for cooperation with companies from a manufacturing sector develop strategies to break down and illustrate complex information or quantitative data	1

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No	Name of Activity	Basic Knowledge	Skills	Responsibility & Autonomy	Time (h)
Subunit No: 4.2 Building a Brand and Engaging Customers					
4.2.1	**Principles of marketing**	- the importance of active customer participation - elements of internal and external marketing			1
4.2.2	**Principles of corporate identity**	- elements of internal and external marketing			0,5
4.2.3	**Principles of brands and logos**	- elements of internal and external marketing			0,5
4.2.4	**Teaching case brand, ci and logo for industry 4.0**	- principles of industry 4.0 - the importance of active customer participation	- create at least 3 different types of infographics suitable for specific kinds of content - illustrate the principles of industry 4.0 using infographics - create an unique brand including logo and Corporate Identity (CI)	- identify new potential fields for cooperation with companies from a manufacturing sector - use creative approaches to illustrate complex information suitable for internal and external marketing	2
4.2.5	**Introduction trends in marketing**	- elements of internal and external marketing - basics of neuromarketing			1,5
4.2.6	**Marketing Strategy (teaching case)**	- elements of internal and external marketing	- create an unique brand including logo and Corporate Identity (CI)		1
4.2.7	**Communication channels overview**		- use at least 2 communication channels to engage with customers including CTAs (Call To Action)	- develop strategies to break down and illustrate complex information or quantitative data	1

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No	Name of Activity	Basic Knowledge	Skills	Responsibility & Autonomy	Time (h)
Subunit No: 4.3 Evolving Employees					
4.3.1	**Internal education (teaching case)**		- adopt innovative approaches in further education of employees using the competences acquired in the field of graphic design or CCI in general	- identify new potential fields for cooperation with companies from a manufacturing sector	2
4.3.2	**Internal communication and industry 4.0 (teaching case)**	- principles of industry 4.0	- use at least 2 communication channels to engage with customers including CTAs (Call To Action) - adopt innovative approaches to enhance internal communication processes and information flow using the competences acquired in the field of graphic design or CCI in general	- identify new potential fields for cooperation with companies from a manufacturing sector	2

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Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.1: Illustrating industry 4.0

Activity 4.1.1: Principles of industry 4.0

Learning Outcomes	Knowledge	Skills	Responsibility and Autonomy
	• Principles of industry 4.0 necessary for the following activities		
Type of activity	☒ PDF ☐ PPT ☐ Image/Infographic ☒ Video	☒ Test/Quiz ☐ Game ☐ Other (specify) _____	
Duration	60 minutes		
Activity (to be inserted into Moodle and seen by learners)	A short introduction (or refreshment if you have accomplished Unit 1 already) to the topic Industry 4.0 with the help of a worksheet and 3 short Youtube videos. At the end of the theoretical input you can do a brief self assessment. Industry 4.0 is one of the most significant developments in this decade. In all economically developed countries, the trend is towards Industry 4.0. For this reason, the basics of this thinking model are presented here with the help of short videos. 1. Read the handout about industry 4.0 2. Watch the 3 videos about industry 4.0 3. Do the self-assessment „Basics of industry 4.0“		
Assessment	Multiple choice self-assessment (to be implemented as Moodle Activity) 4.1.1_02_Principles of industry 4.0_multiplechoice.docx		
Resources	**Handout**: 4.1.1_01_Principles of industry 4.0_handout.pdf **Videos**: https://www.youtube.com/watch?v=EV1Ygw6_rCs https://www.youtube.com/watch?v=v9rZOa3CUC8 https://www.youtube.com/watch?v=Bo2bu3C6xW8		
Further reading	Klaus Schwab: The fourth industrial revolution. 2017. ISBN: 978-0241300756		

4.1.1_01_Principles of industry 4.0_handout .pdf
(text only, full pdf available separately)

What is Industry 4.0?

(translated from German to English from: https://www.plattform-i40.de/PI40/Navigation/DE/Industrie40/WasIndustrie40/was-ist-industrie-40.html [21.06.2019])

Introduction

"Screws communicate with assembly robots, self-propelled fork-lift trucks store goods on high shelves, intelligent machines independently coordinate production processes. People, machines and products are directly interlinked: the fourth industrial revolution has begun.

Industry 4.0 refers to the intelligent networking of machines and processes in the industry with the help of information and communication technology. There are many ways for companies to use intelligent networking. The possibilities include, for example:

- Flexible production: Many companies involved in the manufacture of a product are involved in the development of a product step by step. Digitally networked, these steps can be better coordinated and the utilization of the machines better planned.

- Convertible factory: Production lines will be built in modules in the future. They can be quickly assembled for a task. Productivity and efficiency are improved, individualized products can be produced in small quantities at affordable prices:

- Customer-centric solutions: consumer and producer move closer together. The customers themselves can design products according to their wishes - for example, elements of sneakers themselves can be designed and adapted to the individual foot shape. At the same time, smart products that are already delivered and in use can send data to the producer. With the usage data, the producer can improve his products and offer the customer novel services.

- Optimized logistics: Algorithms calculate ideal delivery routes, machines independently report when they need new material - the smart networking enables an optimal flow of goods.

- Use of data: Data on the course of production and the condition of a product are combined and evaluated. Data analysis provides guidance on how to make a product more efficiently. More importantly, it's the foundation for completely new business models and services. For example, lift manufacturers can offer their customers "predictive maintenance": elevators are equipped with sensors that continuously send data about their condition. Wear can be detected and corrected before it leads to the failure of the elevator.

- Resource-efficient circular economy: products are considered data-driven over their entire life cycle. Even in the design, it is determined in which form the materials can be recycled.

Talking about Revolution: What's new about Industry 4.0?

Since the 1970s, information technology has moved into business. Desktop PCs, the use of office IT and the first computer-aided automation revolutionized the industry. For Industry 4.0, it is not the computer that is the central technology, but the Internet. Digitalization of production is gaining a new quality with global networking across company or national borders: the Internet of Things, machine-to-machine communication and manufacturing facilities that are becoming ever more intelligent are heralding a new era - the fourth industrial revolution, Industry 4.0.

On the way to Industry 4.0: What else needs to be done?

Implementing Industry 4.0 is a complex project: the more processes the economy digitizes and networks, the more interfaces are created between different actors. Uniform norms and standards for different industrial sectors, IT security and data protection play an equally central role as the legal framework, the changes in education and work, the development of new business models and the necessary research. All of these topics are dealt with by the experts of Platform Industrie 4.0 in six working groups. How the global, digital ecosystems of the future can be shaped is shown by the mission statement 2030 for Industry 4.0. It emphasizes sovereignty, interoperability and sustainability as central guidelines. "

4.1.1_02_Principles of industry 4.0_multiplechoice.docx
(text only, docx available separately, questions for moodle activity)

(correct answers are highlighted)

1. Pick the correct statement:

a. The central technology of industry 4.0 is to build up faster internal networks
b. The central technology of industry 4.0 is the computer.
c. The central technology of industry 4.0 is the internet.

2. Pick the correct statement:

a. Since the 1960s, information technology has moved into business.
b. Since the 1970s, information technology has moved into business.
c. Since the 1980s, information technology has moved into business.

3. Which of the following would be a possible field of application of the principles of industry 4.0? Pick the correct statement(s).

a. Flexible production
b. Convertible factory
c. Customer-centric solutions
d. Optimized logistics
e. Use of data
f. Resource-efficient circular economy
g. All of the above

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4. Pick the correct statement:

a. The term 4th industrial revolution was first introduced by Klaus Schwab.
b. The term 4th industrial revolution was first introduced by Klaus Kuno Pümpin.
c. The term 4th industrial revolution was first introduced by Fredmund Malik.

5. Pick the correct statement:

a. The second indutrial revolution was initiated by mass production.
b. The second indutrial revolution was initiated by steam.
c. The second indutrial revolution was initiated by computers.

6. Pick the correct statement:

a. It took 1 month until Pokemon-Go had 100 million users.
b. It took 1 year until Pokemon-Go had 100 million users.
c. It took 6 month until Pokemon-Go had 100 million users.

7. Pick the correct statement:

a. Industry 4.0 requires no structures.
b. Industry 4.0 requires deeper structures.
c. Industry 4.0 requires flatter structures.

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.1: Illustrating industry 4.0

Activity 4.1.2: Introduction to the topic of infographics

Learning Outcomes	Knowledge	Skills	Responsibility and Autonomy
	• Elements of infographics	• Create 1 different type of infographics suitable for specific kinds of content	• Use creative approaches to illustrate complex information or quantitative data
Type of activity	☐ PDF ☐ PPT ☒ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☒ Other (specify): Creating an infographic about specific content	
Duration	30 minutes		
Activity (to be inserted into Moodle and seen by learners)	In a basic introduction, a brief overview of the subject of infographics should be given. This input serves to introduce the learner to the matter of infographics. 1. Read the internet article about infographics 2. Select the most important 3 points of the internet article about infographics 3. Create an infographic with the 3 most important points of the article		
Assessment	Voluntary upload of infographic about the article as JPG or PDF.		
Resources	**Online article:** https://en.wikipedia.org/wiki/Infographic Any kind of **graphic program** (e.g. Adobe Photoshop, Gimp, Illustrator, etc.), hand-drawn sketches are possible too.		
Further reading	David Mc Candless: Knowledge is beautiful. 2009. ISBN: 978-0007427925		

Unit (Number): 4. Graphic design for marketing in industry 4.0

Subunit (Number): 4.1 Illustrating industry 4.0

Activity 4.1.3: Best practice examples of infographics

Learning Outcomes	Knowledge	Skills	Responsibility and Autonomy
	• Elements of infographics	• Illustrate the principles of industry 4.0 using infographics	

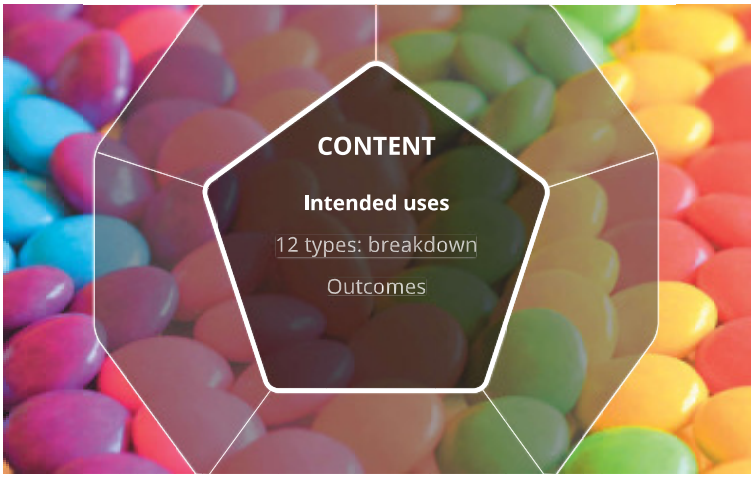
Type of activity		
	☐ PDF ☒ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☒ Other (specify): Online research

Duration	60 minutes
Activity (to be inserted into Moodle and seen by learners)	As input for this unit, an insight into the topic of infographics is given with a PPP (provided as PDF). It deals with the different forms of infographic. 1. View the PP presentation “12 types of infographics” 2. Search the Internet for the topic: "best practice examples for infographics" 3. Name 5 concrete Internet sources for the above search topic 4. Create a PP presentation with 5 good examples of infographics including their description 5. You load up the PP presentation on the platform if you want
Assessment	Voluntary upload of PP presentation to the topic of infographics
Resources	PPP as PDF retrieved from https://myforefront.org/sites/default/files/resources/12-types-of-infographic.pdf PDF/PPP: 4.1.2_01_12 Types of Infographics_PPP.pdf
Further reading	

NEOMAM'S

12 TYPES

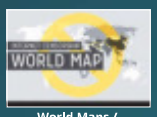
OF INFOGRAPHIC



12

PRACTICAL

Flowchart How-to



World Maps / Countries That...


How to Guides

Illustrated How-Tos

The Guide to...

Photo Guides

EDITORIAL

Visual Answer to a Question

Versus Infographic

Statement with Proof

SOCIAL

50 Facts

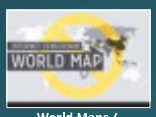
Lists Using Illustrations

Visual Map

12

PRACTICAL

Flowchart How-to



World Maps / Countries That...


How to Guides

Illustrated How-Tos

The Guide to...

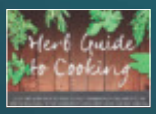


Photo Guides

How to **do / solve / answer** something

Intellectual **insight**

Provide **knowledge**

12

EDITORIAL

Timely - responds to a calendar event

Presents **intelligent reputable data**

Sharer appears to have **knowledge.** Refer to social proof concept in Jonah Berger's 'Contagious'.

Visual Answer to a Question

Versus Infographic

Statement with Proof

12

Creates a **visual buzz**

Quirky content & **dynamic, engaging design**

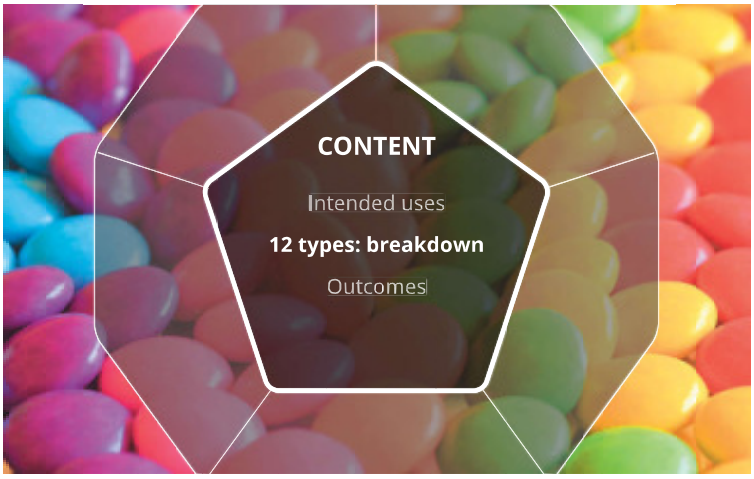
Provides sharer with **'cool factor'**

SOCIAL

50 Facts

Lists Using Illustrations

Visual Map



12 TYPES

1. 50 FACTS ABOUT...

Purpose

- Social Currency
- Look cool/interesting
- Trigger – talked about every day

Focus

- Variety in fact display
- Visualize as much as possible
- Engaging approach for niche topics

12 TYPES

2. VISUAL ANSWER TO A QUESTION

Purpose

- Trigger for editorial calendar
- Timely (not evergreen)

Focus

- Visual storytelling
- Keep interest throughout in content and design
- Use clear sections to aid user navigation
- Analytical and data-dependent – needs to be easy to understand
- Triggers different editorial approach in the eyes of journalists by posing questions

12 TYPES

3. FLOWCHART HOW-TO

Purpose

- True practical or entertainment value

Focus

- Practical, so must be easy to follow
- Logical hierarchy of information and flow
- Basic data visualization principles
- A well produced flowchart should be visualized as a 'poster on the fridge' scenario
- Great opportunities for social media versions - highly shareable

12 TYPES

4. VERSUS INFOGRAPHIC

Purpose

- Timely like movies and games
- Social currency

Focus

- Clear like-for-like comparison
- Data elements adjacent
- Use data visualization principles
- Great accompanying pieces for editorial content around the topic
- Direct visual comparisons allow for instant understanding of the parallels drawn (immediate transferrance of concept) - ignites engagement and commentary

12 TYPES

5. HOW TO GUIDES

Purpose

- Trigger / timely
- High practical value

Focus

- Actionable steps
- Clear, easy to follow diagrams
- High editorial success

12 TYPES

6. THE GUIDE TO...

Purpose

- Trigger for big audiences
- Practical value
- Solve a problem
- Social currency

Focus

- Topics vary widely
- Clear, understandable, logical, usable
- Visualized guides have achieved great success throughout different audiences

12 TYPES

6. THE GUIDE TO...

12 TYPES

7. WORLD MAPS / COUNTRIES THAT...

Purpose

- Trigger (media)
- Practical value

Focus

- Try to include an overview of the map in heading for editorial purposes
- Clarity in data set
- Make sure it tells the story of the data
- Care in perfection of maps - online communities are passionate about accuracy of their country's representation

12 TYPES

8. LISTS USING ILLUSTRATIONS

Purpose

- Trigger - Interest

Focus

- Illustrations do the talking
- Increase the speed of transference
- Make text into labels / graphic features / part of illustration
- Mixture of photos & illustrations works well
- Keep content to minimum in order to convey the concept, allowing maximum space for impactful visuals
- Great potential for visualized articles through use of segments with written text which supports the concept

12 TYPES

9. ILLUSTRATED HOW-TOS

Purpose

- Social and practical
- Wide appeal and are practical

Focus

- Maximize illustration (or would be article)
- Scenario-heavy
- Travel industry love these
- Bright colours, dynamic, positive, engaging
- Feel-good factor

12 TYPES

10. STATEMENT WITH PROOF

Purpose

- Based on a topical issue
- Sharer looks knowledgeable

Focus

- Evidence will be from high-end sources
- Look viable, believable, scientific
- Hypothetical situations based on existing data
- Build up the case visually alongside content
- Visuals are to enhance understanding, not cloud it - allow journalists to create their own angle

12 TYPES

11. VISUAL MAP

Purpose

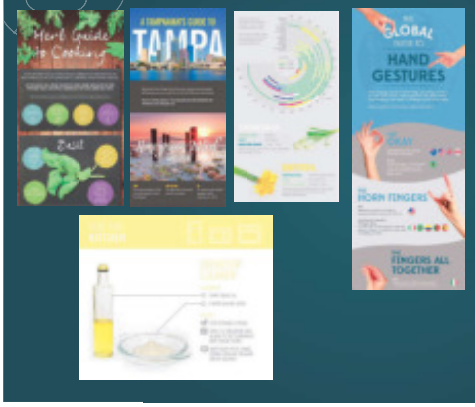
- Map-orientated
- Highly social

Focus

- All data requires top map for context
- Detail below
- In contrast to 'World Maps', where a specific location/country/region is featured, rather than a global view
- Narrow/niche topic which appeals to a specialized community
- Combination of photo and illustration works well

12 TYPES

12. PHOTO GUIDES

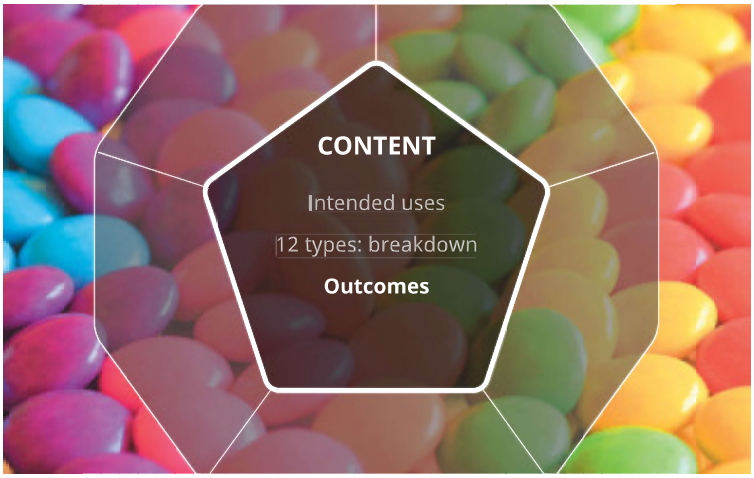


Purpose

- Practical

Focus

- Another 'poster on the fridge' scenario
- Works well within travel and lifestyle industries
- Photos provide instant transference and visual appeal
- Keep it simple
- Visualize everything (such as the steps within 'A Guide to DIY Cleaning Products')



DESIRED OUTCOMES

Robotic templated design
Copy, paste, change the colour
"Do this one, but about giraffes."

Trying new things
Creative, unusual approaches
Within an organised framework

ALWAYS ASK:

What is the **purpose**?

Where is the **value**?

Why will people **share** it?

How can I **maximise** that?

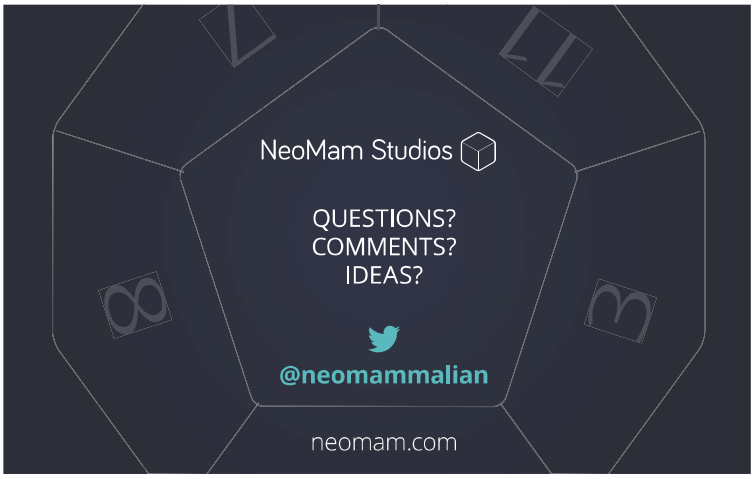
ALWAYS DO:

Visualise as much as possible to **aid understanding**

Always have a clear **hierarchy of information**

Explore and **push boundaries**

THE DESIGN IS TO **AID UNDERSTANDING** & **GENERATE APPEAL**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IDEAS?
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Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.1: 4.1 Illustrating industry 4.0

Activity 4.1.4: Infographics and industry 4.0 (exercise)

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• Principles of industry 4.0 • Elements of infographics	• Create at least 3 different types of infographics suitable for specific kinds of content	• Identify new potential fields for cooperation with companies from a manufacturing sector develop strategies to break down and illustrate complex information or quantitative data
Type of activity	☒ PDF ☐ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☐ Other (specify) _____	
Duration	60 minutes		
Activity (to be inserted into Moodle and seen by learners)	In the last activity of this unit, knowledge about the topic of Industry 4.0 is combined with the knowledge of creating infographics. At the end, 3 infographics are to be compiled to summarize the most important contents of industry 4.0. 1. Read the text on the theme of the fourth industrial revolution 2. Select the 3 most important aspects of the topic "fourth industrial revolution" 3. Create an infographic which represents these 3 aspects		
Assessment	Voluntary upload of created infographic		
Resources	**PDF Article:** 4.1.4_01_The fourth industrial revolution.pdf Any kind of **graphic program** (e.g. Adobe Photoshop, Gimp, Illustrator, etc.), hand-drawn sketches are possible too.		
Further reading			

4.1.4_01_ The fourth industrial revolution.pdf
(inserted PDF, PDF available separately)

The Fourth Industrial Revolution: Opportunities and Challenges

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Abstract

The fourth industrial revolution, a term coined by Klaus Schwab, founder and executive chairman of the World Economic Forum, describes a world where individuals move between digital domains and offline reality with the use of connected technology to enable and manage their lives. (Miller 2015, 3) The first industrial revolution changed our lives and economy from an agrarian and handicraft economy to one dominated by industry and machine manufacturing. Oil and electricity facilitated mass production in the second industrial revolution. In the third industrial revolution, information technology was used to automate production. Although each industrial revolution is often considered a separate event, together they can be better understood as a series of events building upon innovations of the previous revolution and leading to more advanced forms of production. This article discusses the major features of the four industrial revolutions, the opportunities of the fourth industrial revolution, and the challenges of the fourth industrial revolution.

Keywords: fourth industrial revolution, five ages of civilization, 3D printing technology, artificial intelligence, IoT, fusion of technology, robotics

1. Introduction

The speed and measure of the changes coming about by the fourth industrial revolution are not to be ignored. These changes will bring about shifts in power, shifts in wealth, and knowledge. Only in being knowledgeable about these changes and the speed in which this is occurring can we ensure that advances in knowledge and technology reach all and benefit all.

The first industrial revolution started in 1760 with the invention of the steam engine. The steam engine allowed the transition from farming and feudal society to the new manufacturing process. This transition included the use of coal as the main energy while trains were the main means of transportation. Textile and steel were the dominant industries in terms of employment, value of output, and capital invested. The second industrial revolution began in 1900 with the invention of the internal combustion engine. This led to an era of rapid industrialization using oil and electricity to power mass production. The third industrial revolution started in 1960 and was characterized with the implementation of electronics and information technology to automate production. Under the old ways, making things involved screwing or welding lots of parts together. The fourth industrial revolution now involves computer generated product design and three dimensional (3D) printing, which can create solids object by building up successive layers of materials. (Prisecaru, 57-62) Table 1 shows a short presentation of the industrial revolutions from 1760 to the present.

Table 1. Main characteristics of industrial revolutions

Period	Transition Period	Energy Resource	Main Technical Achievement	Main Developed Industries	Transport Means
I: 1760-1900	1860-1900	Coal	Steam Engine	Textile, Steel	Train
II: 1900-1960	1940-1960	Oil Electricity	Internal Combustion Engine	Metallurgy, Auto, Machine Building	Train, Car
III: 1960-2000	1980-2000	Nuclear Energy Natural Gas	Computers, Robots	Auto, Chemistry	Car, Plane
IV: 2000-	2000-2010	Green Energies	Internet, 3D Printer, Genetic Engineering	High Tech Industries	Electric Car, Ultra-Fast Train

Source: Prisecaru, P. (2016). "Challenges of the Fourth Industrial Revolution." *Knowledge Horizons. Economics*, 8(1), 57-62. Web https://search-proquest-com.ezproxy.libraries.udmercy.edu:2443/docview/1793552558?accountid=28018.

Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.

There are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact. The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace. Moreover, it is disrupting almost every industry in every country. And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance." (Schwab 2015)

2. Opportunities of the Fourth Industrial Revolution

There are similarities between four industrial revolutions and the five ages of civilization: the hunter and gather age, the agricultural age, the industrial age, the information worker age, and the emerging age of wisdom. Therefore, we may infer the opportunities of the fourth industrial revolution through the characteristics of these five ages of civilization presented by Steven Covey in his book 8th Habit. (2011, 12-17) First, the productivity of each subsequent age goes up fifty times over the preceding age. Consider for example, the increase in productivity of the industrial age over the agricultural age. Second, each subsequent age destroys many of the jobs of the preceding age. The information age is replacing the jobs created by the industrial age. Much of losses in our industrial age jobs have less to do with government policy and free trade agreements than they do with dramatic shift in our economy to the knowledge worker.

Third, in the first three ages of civilization manual workers produced most goods and services with their body, but in the last two ages, knowledge workers produce most goods and services with their mind. Knowledge workers are the link to a company's other investments. They provide focus, creativity, and leverage in using those investments to achieve the organization's objectives more efficiently. In other words, knowledge is an integral part of total management and cuts across functional boundaries. The main assets and primary drivers of the industrial age were machines and capital. People were necessary but replaceable. The management style of the industrial age simply does not work in the new economy. Management focused on motivating employees to perform the physical labor needed to produce the products and services. In the fourth industrial age, the challenge now is how companies can motivate their knowledge workers to release their human potential.

Leading researchers argue that the fourth industrial revolution will shape the future through its impacts on government and business. People have no control over either technology or the disruption that comes with the fourth industrial revolution. However, we can predict the opportunities that comes with the fourth industrial revolution: 1) lower barriers between inventors and markets, 2) more active role for the artificial intelligence (AI), 3) integration of different technics and domains (fusion), 4) improved quality of our lives (robotics) and 5) the connected life (Internet).

First, Chris Anderson predicts that the fourth industrial revolution is likely to reduce barriers between inventors and markets due to new technologies such as 3D printing for prototyping. (2012) For example, tissue engineers use rapid prototyping techniques to produce 3D porous scaffolds. The 3D printing technique fabricates scaffolds with a novel micro- and macro-architecture and these in turn help shape the new tissue as it regenerates. New technologies, like this 3D printing, allow entrepreneurs with new ideas to establish small companies with lower start-up costs. The entrepreneur can bring the product 'to reality' with 3D printing, without the traditional time constraints often encountered with traditional prototyping methods. The typical barriers to entry are removed from the marketing equation.

Second, increasing trends in artificial intelligence point to significant economic disruptions in the coming years. Artificial systems that rationally solve complex problems pose a threat to many kinds of employment, but also offers new avenues to economic growth. A report by McKinsey & Company found that half of all existing work activities would be automated by currently existing technologies, thereby enabling companies to save billions of dollars and to create new types of jobs. (Manyika et al. 2017) For example, driverless cars may modestly replace taxi and Uber drivers, but autonomous trucks may radically transform shipping with far fewer jobs for truck drivers.

Third, innovative technologies will integrate different scientific and technical disciplines. Key forces will come together in "a fusion of technologies that is blurring the lines between physical, digital, and biological spheres." (Schwab 2015) This fusion of technologies goes beyond mere combination. Fusion is more than complementary technology, because it creates new markets and new growth opportunities for each participant in the innovation. It blends incremental improvements from several (often previously separated) fields to create a product.

Fourth, robotics can and will change our lives in the near future. Technically robots are automated motorized tools. They cook food, play our music, record our shows, and even run our cars. But we just do not see it because robots do not have a face we to whom we can talk or a butt we can kick. (Tilden) Consequently, robots have the potential to improve the quality of our lives at home, work, and many other places. Customized robots will create new jobs, improve the quality of existing jobs, and give people more time to focus on what they want to do.

Fifth, the Internet of things (IoT) is the Internetworking of physical devices. Typically, the IoT is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine (M2M) communications and covers a variety of protocols, domains, and applications. (Holler, et al. 2014) The interconnection of these embedded devices is expected to usher in automation in nearly all fields, while also enabling advanced applications like a smart grid, and expanding to areas such as smart cities. The revolution of the connected life came about thanks to the advance of the Internet. In 1969, the first data was transmitted over the Internet and linked two main frame computers. Now, the Internet is connecting personal computers and mobile devices. "By 2010, the number of computers on the Internet had surpassed the number of people on the earth." (Gershenfeld and Vasseur 2014, 28)

3. Challenges of the Fourth Industrial Revolution

"We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academic and civil society." (Schwab 2015) This paragraph gives us some idea of the challenges surrounding the fourth industrial revolution. The enormity of the challenges and the breadth required of the response are reinforced by Peters. (2017, 28)

The evolution of global industries in the fourth industrial revolution is both exciting and scary. Life will change with the 3D printing, the IoT, and the fusion of technologies. The fourth industrial revolution can raise income levels by allowing entrepreneurs to "run" with their new ideas. It will improve the quality of life for many people around the world. (Jee 2017, 255-256) Consumers are likely to gain the most from the fourth industrial revolution. "[T]echnological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity. Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth." (Schwab 2015)

While there are many benefits of the fourth industrial revolution, there are several key challenges that lie ahead. At the same time, the revolution could yield greater inequality, particularly in its potential to disrupt labor markets. As automation substitutes for labor across the entire economy, the net displacement of workers by machines might

exacerbate the gap between returns to capital and returns to labor. The scarcest and most valuable resource in an era driven by digital technologies will be neither ordinary labor nor ordinary capital; rather it will be those people who can create new ideas and innovations. In the future, talent, more than capital, will represent the critical factor of production. People with ideas, not workers or investors, will be the scarcest resource. (Brynjolfsson, McAfee, and Spence 2014). In 2017 Bloomberg Global Business Forum, Apple CEO Tim Cook commented – "If I were a country leader, my goal would be to monopolize the world's talent." (Leswing 2017) The quest for talent will give rise to a job market that may become increasingly segregated. Low skilled and low wage jobs will be replaced by computers and digitization. The higher paid jobs requiring more skills are less likely to be replaced. This increased dichotomization can lead to an increase in social tensions. (Wolf 2015, 125)

In addition to the threat of massive job displacement under the ongoing fourth industrial revolution, there are a variety of challenges, such as cybersecurity, hacking, risk assessment, and others. (Lambert 2017) A higher level of alert is raised up when our lives become extensively connected to various devices, from our cell phones, cars, and light switches to our home security cameras, and smart speakers. One of the biggest trends in 2018 Consumer Electronics Show is that everything is connected and there is no going back. (Goode 2018)

Having everything attached to everything else in the IoT is going to monumentally increase the vulnerabilities present in any given network. With more knobs, connections and burden of connectivity, systems are going to have to be more secure. The fourth industrial revolution calls for greater cybersecurity. Companies will need to map their networks, assessing the risk and critical factors relating to security. Such an assessment should examine accessibility to systems, such as possible threats from internal sources, from disgruntled employees to internal human error, and external sources including hackers and cyber terrorists. Further, companies must assess risk and determine if these risks will be accepted, reduced, shared via insurance or other vehicles, or rejected. Risks can be from both intentional and unintentional sources. If your house lights turn on via your computer, but you have lost the wireless connection to your house, you may be living in the dark. Unintentional sources of risk can include error s promulgated by company employees or nature itself such as storms causing disruptions in connectivity. Individuals too should assess their risks, just as companies will. It may come that the Internet will have more information about individuals than the family, friends, and colleagues of the individuals. Certainly, the ability of data to be processed and the speed in which it can be done surpasses the ability and speed of individuals. It is necessary to examine the value of processes and assets, from machinery to intellectual property, ensuring that there is insurance, security measures and that any vulnerability is sufficiently identified.

When we consider the changing nature of security threats - from employees connecting personal devices to company networks to brute force attacks from hackers - the situation is further complicated. The sophistication in risk identification and neutralization has to change with it. While data can be lost or stolen by employees, either inadvertently or intentionally, the biggest attacks in recent years have been external malicious attacks, collectively or commonly referred to as hacking. These could be hacking to move money around, such as when Russian hackers stole $10 million from Citibank customer accounts, Internet terrorism, such as the $2 million damages caused to WeaKnees.com over a six week botnet attack, Internet pump-and-dump fraud where hackers take advantage of manipulating stock prices, or software piracy which is estimated to cost over $50 billion a year. (Romney and Steinbart 2017, 159-167)

The fourth industrial revolution is more than just technology-driven change. Rather, it is powered with disruptive innovation to positively impact our core industries and sectors, such as education, health and business. In education, with the previous industrial revolutions, the focus of education changed. With the first industrial revolution, education was focused on standard modes of learning, such as the McGuffey reader. With move toward mass production in the second industrial revolution and standardized testing. Education is service oriented and with the move into the third industrial revolution we come to see students under a customer learning model. Now in the fourth industrial revolution, technologies really blur the lines between physical, digital and biological spheres. Disruptive innovation makes its way into higher education in which it redefines the conventional ways universities deliver their content to students. New modes of curriculum and teaching arise, and the focus changes from modes of teach to modes of learning. Alternative curriculums are being constantly developed. Disruptive innovation also reshapes how businesses operate. Thinking has really moved outside of the box. New markets are created and new products are defined. Netflix is competing with traditional television. Taxis must compete against Uber and Lyft. These offered similar product offered to customers in new ways. You could watch your shows from your home or get a ride somewhere. With the Airbnb alternative overnight accommodations are competing against traditional hotels and motels. (Jules 2017)

Last, in an era featuring AI, automation, robots, and genetic engineering, we have new ethical concerns emerging. Lots of debates have arisen in genetic engineering about the use of tools and research technologies. On one hand, preventing genetic disease by genetic engineering is desirable. On the other hand, what guidelines, or regulation, or ethical boundaries we should establish in order to prevent the over manipulation genetics for desirable traits? Is there such a thing as over manipulation? Infused with artificial intelligence and machine learning ability, robots have become smarter and more autonomous, but they still lack an essential feature - the capacity of moral reasoning. This limits their ability to make good or ethical decisions in complex situations. Further, the most critical question is whose moral standards should robots inherit. Moral values differ greatly from individual to individual, across countries, religions, and ideological boundaries. Uncertainty over which moral framework to adopt underlies the difficulty and limitations to ascribing moral values to artificial systems. (Al-Rodhan 2015)

4. Conclusion

We have recently entered the dawn of the fourth industrial evolution, in which it differs in speed, scale, complexity, and transformative power compared to previous revolutions. This article has examined the opportunities and challenges that are likely to arise as a result of the fourth industrial revolution. As industrial revolutions have moved from the mechanization of production in the first industrial revolution, to the mass production in the second, and then to the automation of production in third, the standards of living for most people around the world have greatly improved. Undoubtedly, the capability of advancing technology coming forth from the latest industrial revolution has the potential to make even bigger and greater improvements on every aspect of our lives changes than the first three industrial revolutions summed together.

On the other hand, there are a variety of challenges stemming from the fourth industrial revolution to overcome. From income inequality to cybersecurity, the benefits of the fourth industrial revolution have obstacles that must be harnessed, directed and overcome, such as income inequality, cybersecurity, and ethical dilemmas. Technology and advancements in science drive transformation around the world. They create ripple effects on societies, institutions, and economies. They will transform the ways in which we live, work, and interact with one another. Understanding these new technologies and their disruption potential is critical for all nations and especially developing countries.

The fourth industrial revolution may affect society and economy in a variety of ways. (Prisecaru 2016) First, a large portion of people around the world are likely to use social-media platforms to connect, learn, and change information. Second, a variety of innovative producers and competitors will have easy access to digital platforms of marketing, sales, and distribution, thereby improving the quality and price of goods and services. Third, consumers will be more and more involved in the production and distribution chains. The main effects of this revolution on the business environment are the impact it will have on consumer expectations, product quality, the move toward collaborative innovation, and innovations in organizational forms.

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Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.1: Principles of marketing

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• The importance of active customer participation elements of internal and external marketing		
Type of activity	☒ PDF ☐ PPT ☐ Image/Infographic ☒ Video	☒ Test/Quiz ☐ Game ☐ Other (specify) _____	
Duration	60 minutes		
Activity (to be inserted into Moodle and seen by learners)	In this introduction to the topic of marketing, a short overview of the classical instruments of marketing should be given. 1. Read the article on “Marketing Principles and Process“ written by Brent L. Rollins. 2. Watch the video "Marketing: An introduction" based on Kotler and Armstrong. 3. Answer the questions in the test.		
Assessment	Test		
Resources	**PDF Article**: 4.2.1_01_Marketing Principles.pdf **Video**: https://slideplayer.com/slide/4618627/		
Further reading	Gary Armstrong, Philip T. Kotler. Principles of Marketing. 2017. ISBN: 978-1292220178		

4.2.1_01_Marketing Principles.pdf
(inserted PDF, PDF available separately)

CHAPTER 1

Marketing Principles and Process

Brent L. Rollins, PhD, RPh

LEARNING OBJECTIVES

1. Define marketing and describe how it functions as a process.
2. Define and describe the general principles of marketing, including needs, wants, demand, and value, and apply these principles to the pharmaceutical industry.
3. Identify and describe the traditional marketing mix variables (product, price, place, and promotion) and how they uniquely function in the pharmaceutical industry.
4. Identify and describe how the principles of segmentation, targeting, and positioning uniquely function in the pharmaceutical industry.
5. Identify the determinants of marketing effectiveness and apply them to the evaluation of a pharmaceutical manufacturer.

CASE IN POINT 1-1

Marketing from Different Professionals' Perspectives

As a student, professor, or healthcare software company employee, more often than not at some point an individual attends a national

association meeting or trade show event. In pharmacy, pharmacists, academics, and industry professionals can attend the national American Pharmacists Association (APhA) meeting held annually around the first of March. At this meeting, practicing pharmacists are updated on the latest medications and practice guidelines while they can also catch up on their continuing education or networking with various colleagues and employers. Academic pharmacists and researchers present their research, learn about others' work, network with colleagues, and, possibly, complete continuing education requirements. Industry professionals use this meeting to, among other things, introduce new product offerings or connect with potential future employees.

This meeting can be examined from three different perspectives. First, from the practicing pharmacist's perspective: BG decides to go the meeting based on a colleague's recommendation about its benefits. Her colleague states that, not only did he connect with his current employer, he was able to attend a special session to receive his immunization certification. Thus, based on this information, BG signs up to attend the meeting. While walking around the meeting's exhibit hall where a large variety of companies, from pharmaceutical manufacturers to chain pharmacies to pharmacy software companies, have set up information booths, BG happens to recognize a former classmate from pharmacy school working the booth for a competing chain pharmacy. After some casual conversation with her old classmate, who is now a district manager, BG explains that she is here to get her medication therapy management (MTM) certification and wants to start providing those services in her current position. Her classmate mentions opportunities at his company, which is actually getting ready to open a new store approximately 10 minutes from BG's home. Her classmate explains that the company is seeking a pharmacist who can bring MTM skills, specifically in the area of diabetes care and monitoring, into their pharmacy and train other pharmacists on the practice. After they exchange business cards and discuss a time for her to interview formally, BG takes a pamphlet that explains the benefits provided by her former classmate's company.

CJ, an academic pharmacist and researcher, attends the meeting to present his recent research project. While CJ stands by his poster, another academic pharmacist stops and asks a few questions about his research. After they discuss CJ's research project, the colleague mentions that she has just finished some preliminary data collection on a very similar topic and is intrigued by the methodology CJ used to test his hypotheses. She then suggests the possibility of combining their preliminary data and putting together a collaborative grant application. They exchange business cards and then set up a lunch meeting for the next day to discuss the potential project in more detail.

DL, a healthcare software industry professional, attends the meeting to demonstrate to pharmacists and pharmacies her company's new workflow management system. Given the large number of pharmacists, especially independent pharmacists and pharmacy owners, and national chain pharmacy representatives in attendance, DL surmises that this might be her best opportunity to gain a customer base. To fully demonstrate the system, DL and her coworkers set up a mini-pharmacy in the exhibit hall, allowing passersby (hopefully future customers) to view firsthand its capabilities.

INTRODUCTION

What does the multiperson example described in Case in Point 1-1 have to do with marketing? Marketing is a part of most every individual and business transaction. Most people link marketing traditionally to the area of consumer goods, where everything from sponsoring a NASCAR driver's car to television commercials to company logo stickers is a piece in the marketing process—all aimed at informing potential customers about a product or service offered by the company. However, as witnessed in the case, marketing can focus on monetary business transactions (such as the software company representative trying to sell the latest software) or nonmonetary transactions (BG marketing herself as a potential employee; CJ focusing on professional development in a collaborative research project).

Thus, what exactly is marketing and how can it be defined? The vital point is that marketing is not just a single TV commercial, email offer, or handshake introduction; it is a process. The singular events and items described in the case

are just small pieces of a company's or individual's marketing efforts. Each piece, in addition to strategy, planning, and analysis, plays a role in the overall marketing strategy. According to Philip Kotler, academic and world-renowned marketing expert/author, **marketing** is

> the science and art of exploring, creating, and delivering value to satisfy the needs of a target market at a profit. Marketing identifies unfulfilled needs and desires. It defines, measures, and quantifies the size of the identified market and the profit potential. It pinpoints which segments the company is capable of serving best and it designs and promotes the appropriate products and services. (Kotler, 2012)

More concisely, marketing is the process of creating value for customers through exchange.

In this process, businesses examine their capabilities and the needs, wants, and demands of the marketplace to determine which customers they want to serve and how they want their products to be perceived by those customers. This involves market segmentation, targeting, and product positioning, where segmentation and targeting identify customers the business will try to serve, and product positioning creates the product's or service's desired image in customers' minds. Next, marketers design and implement marketing plans and programs to reach the target market and create the desired position in customers' minds. Marketing programs and the marketers' decisions revolve around the traditional marketing mix variables: product, price, place, and promotion. Marketing professionals manipulate these variables to create advantages for a firm's products and value for customers. Finally, businesses manage their marketing process by monitoring results obtained (e.g., sales or lack thereof) and adapting programs to stay on track as customer and market conditions change. The rest of this chapter develops the primary tenets and components of marketing overviewed here: customer needs, wants, demands, and value; product, price, place, and promotion; and segmentation, targeting, and positioning.

CUSTOMER NEEDS, WANTS, DEMANDS, AND VALUE

Although many variations of the definition of marketing exist, all include the primary determinant for marketing: Success is achieved by meeting customer needs. Though this might seem too simplistic, truly all the time, effort, and

money put into the marketing process—the $3 million 30-second Super Bowl commercial ads, for instance—aim to meet customer needs.

The most basic **needs** are those inherent to human existence. For example, people have physiologic needs for food, water, and sleep in addition to safety, social, and personal needs. As individuals grow in their environment and into their own personality, these needs eventually become **wants**. For example, when a person is hungry for breakfast any food should satisfy that need, but perhaps the individual wants a Chik-fil-A Chicken Biscuit Combo with a large sweet tea because he just saw a commercial for it.

Further, one might ride mountain biking trails as a cross-training exercise of choice and need a new bike. Even though a reasonable and sufficient bike might cost $300–$500, an individual might *want* the Giant Reign X0 All-Mountain bike with an average retail price of $6,100. The next question is whether this person can actually afford to purchase a $6,100 mountain bike. If so, this then creates demand for the product. A want combined with the *ability to pay* creates **demand**.

However, Giant is not the only supplier of high-end mountain bicycles. Trek and Schwinn also provide high-tech and specialist mountain bikes. How does a consumer choose which bike to purchase? When multiple purchase options are available, a multitude of factors play into the consumer's decision, such as price and personal tastes and preferences. Ultimately, though, a consumer most likely chooses the option that provides the most value.

Value is typically viewed as the subjective relationship between the perceived benefits and perceived costs of a product or service. Mathematically, it can be expressed in the following manner:

$$\text{Value} = \text{Perceived benefit(s)} / \text{Perceived cost(s)}$$

Thus, if both benefits and costs are high or low, the product/service could be deemed to have little value. However, if the benefits greatly exceed the costs, then the product could be seen as having high value. With the mountain bike example, an individual might perceive the benefits (durability, speed, suspension, less maintenance, etc.) of the $6,100 bike to be far greater than the high price and associated maintenance costs. This individual might perceive this bike to be of great value. However, a different person might view the high monetary cost of the bike to be too great as compared to the bike's benefits and perceive the product as having little overall value. Although the value equation is shown as a mathematical expression that implies absolute objectivity, value, as illustrated in the bike discussion, is a highly subjective measure.

CASE IN POINT 1-2

Pharmaceuticals: Needs, Wants, Demand, and Value

CC, a 48-year-old male, visits his primary care physician for his annual checkup. During his visit, the physician informs CC that his total cholesterol has gotten too high and, in addition, his HDL, or "good cholesterol," levels are too low. The physician states that he *needs* to prescribe CC a medication to help get these numbers more in line with national guidelines. CC mentions that he saw an advertisement for a new cholesterol medication he *wants*, which increases the good cholesterol in addition to lowering the bad. The physician then explains to CC the high cost of the new brand-name medication, which CC then refutes because he has "great insurance and it shouldn't be too expensive—don't worry about the cost" (*demand*). After reviewing CC's other labs, the physician decides to prescribe an older, generically available medication because he thinks it provides the most *value* given CC's current labs, family history, and the medication's wealth of clinical effectiveness data and low cost.

In the quest to meet customer needs, wants, and demand while providing maximum value, companies employ a wide array of activities to make their marketing more effective. Through their own interactions with their customer base as well as the feedback through now mostly online media, companies can gauge the pulse of their customers on a day-to-day, real-time basis. Truly successful marketing organizations use this market intelligence and their own operational efficiency to adapt to any situation while continually focusing their energy and strategy on meeting customer needs.

MARKETING MIX: THE TRADITIONAL FOUR Ps

To develop effective marketing, companies must know, understand, and manipulate to the best of their abilities the marketing mix, a set of company-controlled variables, tools, and actions used to meet customer needs and wants while also trying to influence demand in favor of the company's goods and/or services.

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.2: Principles of corporate identity

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• elements of internal and external marketing		

Type of activity		
	☐ PDF ☐ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☒ Other (specify): Online Research

Duration	30 minutes
Activity (to be inserted into Moodle and seen by learners)	This activity is a basic introduction to corporate identity. The following tasks can be done: 1. Read the article about corporate identity. 2. Analyze the companies Apple, RWE, McDonald's concerning the following: - How is the company seen by the customers? - What visual elements do you associate with the company? - What should be expressed with these visual elements?
Assessment	-
Resources	**Article on Wikipedia:** https://en.wikipedia.org/wiki/Corporate_identity **Examples for Analysation:** Apple: https://www.apple.com/ RWE: https://www.group.rwe/en McDonald's: https://www.mcdonalds.com/us/en-us.html
Further reading	

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.3: Principles of brands and logos

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• elements of internal and external marketing		

Type of activity		
	☐ PDF ☐ PPT ☐ Image/Infographic ☒ Video	☐ Test/Quiz ☐ Game ☒ Other (specify) Online Research

Duration	30 minutes
Activity (to be inserted into Moodle and seen by learners)	This activity is a basic introduction to brands and logos. The following tasks can be done: 1. Read the article about brands. 2. Read the article about logos. 3. Watch the video about the most valuable brands in 2018 on youtube.
Assessment	Get a basic knowledge about brands and logos with the help of examples
Resources	**Articles** Logo: https://en.wikipedia.org/wiki/Logo Brand: https://en.wikipedia.org/wiki/Brand **Video**: https://www.youtube.com/watch?v=gLDRI0OObXA
Further reading	

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.4: Brand, CI and logo for industry 4.0 (teaching case)

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• principles of industry 4.0 the importance of active customer participation	• create at least 3 different types of infographics suitable for specific kinds of content • illustrate the principles of industry 4.0 using infographics • create a unique brand including logo and Corporate Identity (CI)	• identify new potential fields for cooperation with companies from a manufacturing sector • use creative approaches to illustrate complex information suitable for internal and external marketing
Type of activity	☒ PDF ☐ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☐ Other (specify) _____	
Duration	120 minutes		
Activity (to be inserted into Moodle and seen by learners)	The following unit is about applying the previously learned knowledge in a concrete case study. The basis for this case study is a fictitious company that deals with the presentation of difficult technical issues in companies. 1. Read the complete teaching case enclosed. 2. Finish the tasks mentioned in the teaching case: - Develop a logo considering the requirements mentioned - Develop an additional 5 elements that describe the brand of this company. - Develop 3 concrete statements that make up the corporate identity of this company and present them in an infographic. 3. If you like to share your work, upload them to the platform.		
Assessment	Voluntary upload of a PDF including the elements developed in the teaching case. Hand-drawn sketches are possible too and can be uploaded as JPG or PDF.		
Resources	**PDF**: 4.2.4_01_BrandCILogo_teachingcase.pdf		
Further reading			

4.2.4_01_BrandCILogo_teachingcase.pdf
(text only, PDF available separately)

Indroduction

The following unit is about applying the previously learned knowledge in a concrete case study. The basis for this case study is a fictitious company that deals with the presentation of difficult technical issues in companies.

Description of the situation

Your company

Your company is a specialized advertising agency that deals with the simple presentation of difficult issues. The company employs 10 staff. The technical equipment is up to date and enables the implementation of all possible solutions. Although the company is considered to be very innovative, it is becoming increasingly difficult to find suitable employees. In addition, the pressure of the competition is increasing, which has already tried several competitors to copy the services.

Target groups

The target groups of the company are primarily companies in the manufacturing sector. Lately, you have increasingly focused on graphic representations and solutions in the area of Industry 4.0. You definitely want to be part of this trend.

Tasks

Your new project

A new customer, the DYNA SEAL GmbH, a manufacturing company that deals with the production of seals for high-pressure lines in the 3D printing process, wants to completely redesign its market presence. So far, the company has been very traditionally oriented and would like to be seen as an innovative manufacturer in the future. The first step is to redevelop the corporate identity, the brand and the logo.

Your tasks

Next week you will have the opportunity to give a presentation of your first suggestions. The following general conditions or key points must be observed:

- The company wants to be perceived as an innovative company.

- The company wants to be a young company.
- The elements of the Industry 4.0 theme must be present in any case.
- The visual elements must express technical competence.
- The corporate identity, the brand and the logo should be suitable for an international market presence.

The following specific tasks have to be done:

1. Develop a logo for the company, which takes into account all the above conditions and key points.
2. Develop an additional 5 elements that describe the brand of this company.
3. Develop 3 concrete statements that make up the corporate identity of this company and present them in an infographic.

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.5: Introduction trends in marketing

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• elements of internal and external marketing • basics of neuromarketing		

Type of activity		
	☐ PDF ☐ PPT ☐ Image/Infographic ☒ Video	☐ Test/Quiz ☐ Game ☒ Other (specify) Online Research

Duration	90 minutes
Activity (to be inserted into Moodle and seen by learners)	The following unit deals with the topic of trends in marketing. For this purpose, current examples are presented. A major trend in marketing is neuromarketing. This trend will be discussed in more detail. Do the following tasks: 1. Check out the YouTube video on topic marketing trends 2019. 2. Go to the internet pages about marketing trends and read the article. ➔ From your perspective, present the 3 most important marketing trends with the help of an infographic. 3. Watch the two YouTube videos about neuromarketing. 4. Read the article about good examples of neuromarketing. ➔ Create an infographic on any topic from your work using the principles of neuromarketing.
Assessment	Voluntary upload of the created infographics
Resources	**Videos**: Marketing trends: https://www.youtube.com/watch?v=O3MC4JCu4vM Neuromarketing: https://www.youtube.com/watch?v=hMkkVCQdoa4 https://www.youtube.com/watch?v=ZbkYV6aXdc0 **Marketing trends:** https://digitalmarketinginstitute.com/blog/8-digital-marketing-trends-to-watch-out-for-in-2019 https://www.forbes.com/sites/forbesagencycouncil/2019/01/15/11-trends-that-will-shape-marketing-in-2019/#4830e5a336a6

	Good examples of neuromarketing: https://www.jeffbullas.com/examples-of-neuromarketing/
Further reading	Hans Georg Häusel. Emotional boosting. 2012. ISBN 978-3-648-02944-2

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.6: Marketing Strategy (teaching case)

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• elements of internal and external marketing	• create a unique brand including logo and Corporate Identity (CI)	

Type of activity		
	☐ PDF ☒ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☐ Other (specify) _____

Duration	60 minutes
Activity (to be inserted into Moodle and seen by learners)	The following unit is about applying the previously learned knowledge in a concrete case study. The basis for this case study is a fictitious company that deals with the presentation of difficult technical issues in companies. 1. Read the complete teaching case enclosed. 2. Finish the tasks mentioned in the teaching case: - Develop 5 marketing ideas that meet the requirements of the fictional case. - Create a PP presentation that presents these 5 points. 3. If you like to share your work, upload them to the platform.
Assessment	Voluntary upload of a PDF or PPP.
Resources	**PDF**: 4.2.6_01_Marketing Strategy_teachingcase.pdf
Further reading	

4.2.64_01_MarketingStrategy_teachingcase.pdf
(text only, PDF available separately)

Indroduction

The following case study is a continuation of the case study from activity 4.2.4 (Brand, CI, Logo). You have successfully developed a CI, a logo and basic elements of a brand for the company DYNA SEAL GmbH. The next step is to develop ideas for a marketing strategy.

Description of the situation

Your company

Your company is a specialized advertising agency that deals with the simple presentation of difficult issues. The company employs 10 staff. The technical equipment is up to date and enables the implementation of all possible solutions. Although the company is considered to be very innovative, it is becoming increasingly difficult to find suitable employees. In addition, the pressure of the competition is increasing, which has already tried several competitors to copy the services.

Target groups

The target groups of the company are primarily companies in the manufacturing sector. Lately, you have increasingly focused on graphic representations and solutions in the area of Industry 4.0. You definitely want to be part of this trend.

Tasks

Develop ideas for a marketing strategy

Your new customer, DYNA SEAL GmbH, a manufacturing company that deals with the production of seals for high-pressure lines in the 3D printing process, has taken the first step towards a successful market appearance with your help. The basic elements of a brand, as well as the CI and logo are present (Activity 8). Now it's about developing ideas for a marketing strategy. Recall the results of Activity 8 again. Build your marketing strategy on these results.

Your tasks

You need to present the first ideas for the new marketing strategy next week.
The following basic conditions or key points from Activity 8 must also be observed:

- The company wants to be perceived as an innovative company.
- The company wants to be a young company.
- The elements of the Industry 4.0 theme must be present in any case.
- The marketing ideas must express technical competence.
- The marketing ideas should be suitable for an international market presence.

In addition, the following points should be noted:

- The marketing ideas should be based on current trends in marketing.
- Your knowledge in the field of neuromarketing should also be included in the marketing ideas.

The following specific tasks have to be done:

1. Develop 5 marketing ideas that meet all the above conditions and key points.
2. Create a PP presentation that presents these 5 points.

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Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.2: Building an brand and engaging customers

Activity 4.2.7: Communication channels overview

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
		• Use at least 2 communication channels to engage with customers including CTAs (Call To Action)	• Develop strategies to break down and illustrate complex information or quantitative data

Type of activity	☐ PDF ☐ PPT ☐ Image/Infographic ☒ Video	☐ Test/Quiz ☐ Game ☒ Other (specify) Online Research
Duration	60 minutes	
Activity (to be inserted into Moodle and seen by learners)	Communication with customers is one of the most important things in marketing. In this unit you will learn the basic possibilities for communication with customers. In addition, the use of CTAs (Call For Action) is discussed. 1. Read the input on the website “communication channels”. 2. Watching the videos about CTA examples. 3. Develop 3 examples for CTAs you can use in your work.	
Assessment	Voluntary upload of CTAs developed in this taks.	
Resources	**Article**: Communication channels: https://masterful-marketing.com/marketing-communications-channel-strategy/ **Videos**: https://www.youtube.com/watch?v=9iB7xaYCdOk https://www.youtube.com/watch?v=fMLyrcPUGxk https://www.youtube.com/watch?v=i1rjOX1Gibw	
Further reading		

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.3: Evolving Employees

Activity 4.3.1: Internal Education (teaching case)

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
		• Adopt innovative approaches in further education of employees using the competences acquired in the field of graphic design or CCI in general	• Identify new potential fields for cooperation with companies from a manufacturing sector

Type of activity	☒ PDF ☐ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☐ Other (specify) _____
Duration	120 minutes	
Activity (to be inserted into Moodle and seen by learners)	The following unit is about applying the previously learned knowledge in a concrete case study. The basis for this case study is a fictitious company that deals with the presentation of difficult technical issues in companies. 1. Read the complete teaching case enclosed. 2. Finish the tasks mentioned in the teaching case 3. If you like to share your work, upload them to the platform.	
Assessment	Voluntary upload of a PDF or PPP.	
Resources	**PDF**: 4.3.1_01_InternalEducation_teachingcase.pdf	
Further reading		

Unit 4: Graphic design for marketing in industry 4.0

Subunit 4.3: Evolving Employees

Activity 4.3.2: Internal communication and industry 4.0 (teaching case)

Learning Outcomes (paste the appropriate LOs from the LOs Matrix)	Knowledge	Skills	Responsibility and Autonomy
	• principles of industry 4.0	• Use at least 2 communication channels to engage with customers including CTAs (Call To Action) • Adopt innovative approaches in further education of employees using the competences acquired in the field of graphic design or CCI in general	• Identify new potential fields for cooperation with companies from a manufacturing sector

Type of activity	☒ PDF ☐ PPT ☐ Image/Infographic ☐ Video	☐ Test/Quiz ☐ Game ☐ Other (specify) _____
Duration	120 minutes	
Activity (to be inserted into Moodle and seen by learners)	The following unit is about applying the previously learned knowledge in a concrete case study. The basis for this case study is a fictitious company that deals with the presentation of difficult technical issues in companies. 1. Read the complete teaching case enclosed. 2. Finish the tasks mentioned in the teaching case 3. If you like to share your work, upload them to the platform.	
Assessment	Voluntary upload of a PDF or PPP.	
Resources	**PDF**: 4.3.2_01_InternalCommunication_teachingcase.pdf	
Further reading		