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HEALT AWARENESS KNOWLEDGE MANAGEMENT THROUGH SOCIAL MEDIA APPLICATIONS

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Annotation
Nowadays use of social media applications has become one of the most important factors in the daily life of both individuals and organisations. Due to the rapid diffusion of the Internet, organisations had to change their communication strategy and focus on exploiting the opportunities offered by different web 2.0 applications. The study is intended to present the process and tools how the organisations can effectively use the different social media applications in order to pass their important messages building the costumers' health awareness. Through the use of developed knowledge based decision support tools health organisations also contribute to consumer behaviour change in health awareness as a factor of sustainability.
KEY WORDS: social media, health awareness, knowledge management, communication, consumer behaviour, sustainability

Introduction

In the past two-three decades the concept of creativity and health promotion and disease prevention are not unknown concepts for anybody, however, most of the people can forget the importance of them during their daily life. Health awareness therefore is not a new phenomenon, but a continuously increasing trend day-by-day due to the rapid information flow and the campaigns of different health institutions. The aim of these campaigns is always the prevention (primary, secondary or tertiary prevention) or support by influencing the knowledge and awareness in order to help to change many health-related behaviours. (Robinson et al, 2014).
Due to the widespread use of social media, health 2.0 is now commonly used terminology. Last few years brought the phenomenon and use of the social media to the mainstream of health communication, information generation and dissemination. Similarly, the patients have been becoming from to information generators and sharers from the simple consumers of Internet content.
Although healthcare staff (doctors, nurses, health professionals) continue to remain the first choice for most people with their health concern, patients and their family members started to use also the Internet and the social media applications to give feedback, create forums, share their positive or negative experiences with certain doctors, diseases, symptoms etc., discuss with each other or educate the others with similar health condition. (Lapointe, Ramaprasad and Vedel, 2014; Brodalski et al, 2011).

This fact supports the need of consumers for health-conscious behaviour, therefore health organisations need to help them in building knowledge based health awareness.

Problem Statement – why health awareness and environmental health is so important in terms of sustainability

Definition of sustainability derives from the Brundtland Report of 1987 which said that "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987). However, recently a more practical and detailed approach has spread, which said that sustainability is the ability to continue a well-defined behaviour indefinitely. The three pillars of sustainability are known as environmental, economic and social sustainability. Figure 1 shows the detailed categorisation of the three pillars.

Attention to health awareness in terms of sustainability is more and more increasing. During sustainability planning and the organization of different health intervention programs, a clear understanding of the concept of sustainability and operational indicators is required. Important categories of indicators include:

- maintenance of health benefits achieved through an initial program
- level of institutionalization of a program within an organization and
- measures of capacity building in the recipient community.

Moreover, planning for sustainability requires the use of programmatic approaches and strategies that favor long-term program maintenance. (Shediac-Rizkallah and Bone, 1998).

Fig. 1: Three pillars of Sustainability (Adapted from ConocoPhillips Company, 2006)

According to Dannenberg, Frumkin and Jackson (2011) relationships between public health, health awareness and sustainability is defined in the definition of environmental health. Environmental health as the subcategory of public health, focuses on the relationships between people and their environments. There are many goals of environmental health, but the most important objectives are to control environmental threats and hazards and also to promote healthy environments. Traditional environmental health focused on sanitation issues, such as clean water, sewage, waste management, food safety and rodent control. In recent decades, environmental health has expanded its scope to address chemical and radiological hazards, such as pesticides and air pollution. And most recently, environmental health has addressed cross-cutting issues, including the built environment, climate change and sustainability. (Dannenberg, Frumkin and Jackson, 2011)

Aim and Objective

The aim is to develop a simplified framework in order to manage the health awareness knowledge with the advanced use of the social media applications.

This is to provide a well-understandable tool for the different organisations and individuals who would like to increase the customers' health awareness and improve the effectiveness of the use of social media during their communication related to health awareness.

Method

Developing knowledge based tools building health awareness for health organisations by collecting the main literature and real industrial experiences. Research methodology contains the main phases and tasks were performed during the study. Full methodology is represented by Figure 2, however, this paper primarily presents the related literature and the developed knowledge based tools.

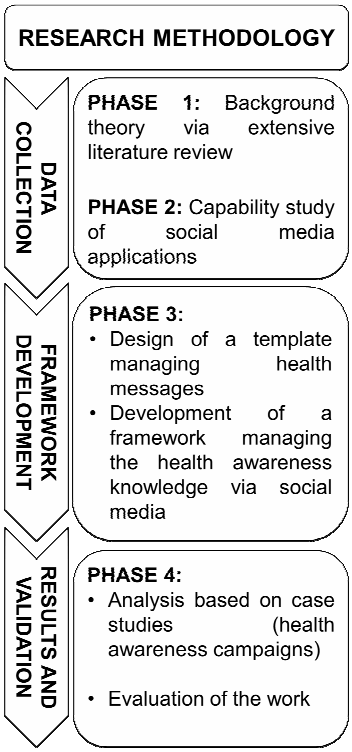


Fig. 2: Research methodology

Results

In last few decades health awareness and health conscious lifestyle became hot topic not only in social

media but in our personal relationships. Consumers have become information generators parallel with the use of new information platforms provided by the Internet based social media. Moreover, public health organisations and practitioners have been trying to emphasize the health awareness through the social media for decades – the first health communication campaign that incorporates social marketing concepts was in the 1960's. Since then, social media campaigns in health awareness have been used in prevention of many public health issues, such as cancer, diabetes, heart attack, stroke and asthma. In health communication effective message development and dissemination process is decisive for these health organisations or healthcare staff in order to reach their target audience with their key messages. Based on the available resources it is clearly seen that health messages are crucial to prevent, early detect or handle the problem and thus to change the consumer behaviour. Thus, health conscious behaviour can help in building sustainability.

Due to the literature review and analysed health campaigns, it can be easily determined that health awareness messages follow more or less similar, well-defined structure. Although target groups are not mentioned in most cases, they can be easily identified based on the message. Health messages usually consist of the action(s) that are necessary in order to prevent, or handle some problem (e.g. Smokefree - Take the first step) and further benefits are also mentioned in some cases. Health message development process follow the basic ACME framework which is used or customised in most cases – not only health awareness message development but also in case of other awareness campaigns.

Reviewing the available resources, this paper defined that there is not a comprehensive, detailed framework or generic process map for managing properly the health awareness knowledge. Therefore, this study is intended to synthesise the good practices of industry and develop a simplified framework with clear process steps (as "know-what" knowledge) and required tools/methods (as "know-how" knowledge) in order to abolish the above-mentioned research gap.

Although this template and framework offers a good starting point to the health awareness commination and health message dissemination, there are some limitations observed during the work. Firstly, the framework contains a generic process model with required tools and methods and based on available literature and industrial good practices, however, some customisations may be needed in certain cases or organisations.

Discussion

- Effective health message development

To understand the role that different social media applications can play in health communication and the need why organisations should use knowledge based tools during their communication, it is essential to clarify some basic definition and concepts. The most integrated and accepted definition of health was defined by the World Health Organisation (WHO) in 1948. According to the Preamble to the Constitution of the WHO: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (WHO, 1948) It is increasingly recognised fact that health can be maintained and improved not only through the health science and different healthcare services, but also through the smart lifestyle of the individuals or society. Thus, WHO also determined the main elements of health, which include the social and economic environment, the physical environment, and the person's individual characteristics and behaviours. Over the last decade, WHO paid an increasing attention to the social and economic fundamentals. (McMichael, 2006)

Health awareness or health–conscious behaviour is all of the individual attitudes, behaviours and activities in order to live longer and remain healthier. To reach these targets, people:

- keep important and enforce their health aspects during their decisions,
- control consciously their habits (e.g. proper nutrition, physical activity, sexual behaviour, avoiding the harmful practices and habits) and thus, they are actively involved in the development of health,
- learn basic assistance and self–help skills
- develop and apply an informed consumer behaviour in relation to the healthcare system:
  - the knowledge of the nature of the disease and possible outputs
  - the knowledge about the operation of the healthcare system
  - the knowledge of the patients' rights
  - the knowledge of health consumer protection

During health communication, communicators follow a well-defined message development process in order to reach the target groups effectively. An effective message development process has well-defined process steps, which based on the Audience-Channel-Message-Evaluation framework according to Noar (2011). Figure 3 shows the basic framework indicating the relationships between the most important principles of health campaign design, implementation and evaluation:

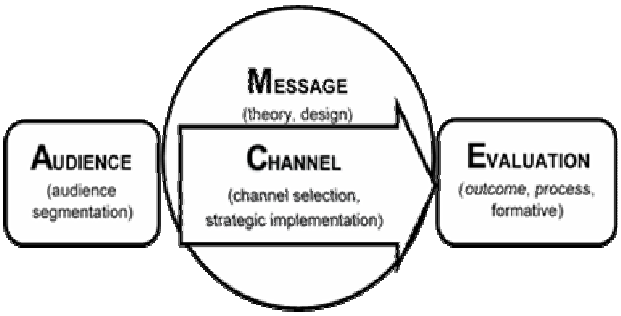


Fig. 3: ACME framework for health communication campaigns (reproduced from Noar, 2011)

According to the framework, it can be clearly seen that audience segmentation, message design and channel selection are the most important factors before the message dissemination. Consequently, the effective

message should be audience-centered and channel-focused to increase the awareness.

However, the awareness of the above-mentioned process steps are not enough. It is also necessary to be aware the main characteristics of a health message. Morrison, Kukafka and Johnson (2005) describe the essential elements of health messages:

- Message recipient – means the identified target groups
- Threats to health – means the main health issues and key risk factors what the organisation would like to communicate during the health awareness campaign
- Actions to be performed to reduce the threat – contains all activities which can be done in order to prevent, handle or solve the problem
- Benefits achieved from performing the actions – describe the further benefits of the activities as supporting arguments

In one word, the effective message development process should focus on the main elements and characteristics of the typical health messages, and also follow the identified main process steps.

- Health awareness and social media – opportunities and limitations

In health communication, the information dissemination is the key element of building health awareness and thus, a crucial factor in the primary, secondary and tertiary prevention and early detection of chronic diseases. Lapointe, Ramaprasad and Vedel (2014) provide a comprehensive overview of the role of social media-enabled collaboration and its impact on creating health awareness through Figure 4:

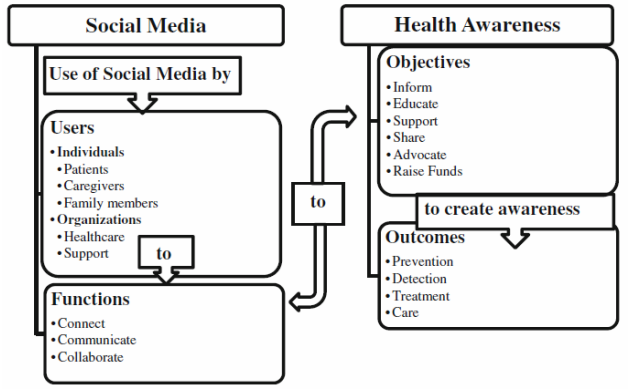


Fig. 4: The users and functions of social media to create health awareness (Adapted from Lapointe, Ramaprasad and Vedel, 2014)

It can be clearly seen that individuals use social media to interact and share information with each other or provide support to people in similar situation. Similarly, organisations use social media to achieve a wide range of objectives – such as education, supporting or fund-raising. Through these activities both individuals and organisations can create or increase the awareness of the need for prevention, early detection (via screening), and options for treatment or care. In addition to, social media enable them to collaborate effectively with each other.

With the new technology developments – such as smartphones, tablets and other new mobile technology devices – the importance of social media is continuously increasing. The information and knowledge can be disseminated directly to the individuals, regardless of geographical distance or time. Therefore, social media can perfectly serve the newly emerged consumer needs – people have an increased demand of information, they would like to communicate or share information with each other in real time etc. However, consumers have more opportunities to use social media and get or share information through various social media channels. This study is also intended to provide a better understanding about the most important channels in terms of publishing health awareness. Table 1 shows the list of social media channels, a short description and example platforms of these channels.

Table 1: Classification of social media channels (source: Kaplan and Heinlein, 2010; Ryan 2014)

Social media channels	Short description	Examples
Blogs	Sites that contains regularly-updated, date-stamped entries, displayed in reverse chronological order.	Technology: Blogger, WordPress Sites: HealthLive Blog
Collaborative projects	Online forums or discussion sites that allow certain groups of people to collaborate, work together in order to create online content.	Google Groups, Business Forums
Media sharing sites	Contact channel that enables people to share different media content (photos, videos, clips etc.) with others.	YouTube Flickr
Micro-blogging	Allow users to share small amounts of digital content – such as short sentences, video links or images. The main difference in compared with blogs is the smaller content size.	Twitter Tumblr WeiBo
Podcasts	Series of digital media content (audio or video) distributed in websites.	Podomatic
Reviews and rating sites	Websites that enable the users to share their own opinions, feedbacks related to other people, products, services etc.	Booking.com FourSquare Tripadvisor.com Amazon.com

Social networking sites	Online communities for information sharing, social connection and other interactions.	Facebook LinkedIn MySpace
Virtual game and social worlds	The group of platforms that simulate a three-dimensional world in which users can interact with others in this environment (similar to real life).	World of Warcraft Wizard of Oz Second Life
Wikis	Websites that enable users to edit and publish easily documents (interlinking pages) using a simple language and a web browser.	Ekopedia Familypedia Wikipedia
Widgets/badges/gadgets/buttons	Small applications that can be easily shared or embedded in other sites.	

Due to the rapid expansion of new technology developments, the role and importance of social media is continuously increasing. Although Facebook, Twitter and YouTube are still the most important and popular platforms of social media, health organisations need to pay attention to other options in order to increase the level of engagement - social networking sites and photo/video sharing sites are the most important channels despite the higher engagement level of virtual reality systems. Moreover, it is interesting that the popularity of microblogs (e.g. Twitter) is higher than blogs in spite of the character limits. Hence, consumers like short and clear messages rather than long stories. Despite the many opportunities and various advantages it offers, there are some drawbacks social media possesses in terms of health awareness communication. In addition to, presence of these limitations is a general phenomenon, not platform-specific characteristics. Table 2 summarises the most important opportunities and limitations that social media have in terms of health communication:

Table 2: Opportunities and limitations of social media

Opportunities	Limitations
Can increase the timely dissemination and potential impact of health and safety information	Resource availability, capacity
More diverse target audience regardless time and location	Lack of control, danger of misinformation due to anonymity
Facilitate the information sharing	Lack of trust and credibility
Easily targeted and personalised health messages	Limitations of space (e.g. character limit)
Facilitate interactivity, online connection and public engagement, thus, create health awareness	Overcrowded platforms
Empower customers to make healthier decisions	Limited audience

- Development of knowledge based tools

Health organisations aim to reach their target groups with their key messages in order to disseminate their knowledge – in other words, make explicit knowledge from their tacit knowledge. Michael Polanyi, a Hungarian economist, chemist and philosopher was among the earliest theorists who popularized the above-mentioned concept of characterizing knowledge as tacit or explicit which is known as the de facto knowledge categorization approach. (Bali and Dwivedi, 2007)

In order to effectively develop a knowledge-driven framework and template, it is crucial to collect all available information, previous experiences and results of brainstorming. Mind map is a suitable tool for the visual representation of all collected and selected pieces of knowledge which can help us in creating knowledge based template and framework. A mind-map is an image-centred, radial diagram that illustrates semantic or other relationships between portions of learned material hierarchically (Buzan, 1991).

This study is intended to provide a well-organised tool which can help in creating a health awareness knowledge template and also the health awareness knowledge management framework. The extensive literature review is a good starting point, however, real industrial experiences and good practices are also necessary to create these knowledge based tools.

Therefore, good practices are collected from the following organisations via their available social media toolkits:

- Centers for Disease Control and Prevention, Office of the Associate Director for Communication
- NHS Employers
- Cancer Research UK
- Toronto Public Health
- AMC Research Center
- International Center for Alcohol Policies

These good practices are also used in creating the above-mentioned mind map.

Figure 5 presents first level of health awareness knowledge management mind map based on the literature and real industrial experiences.

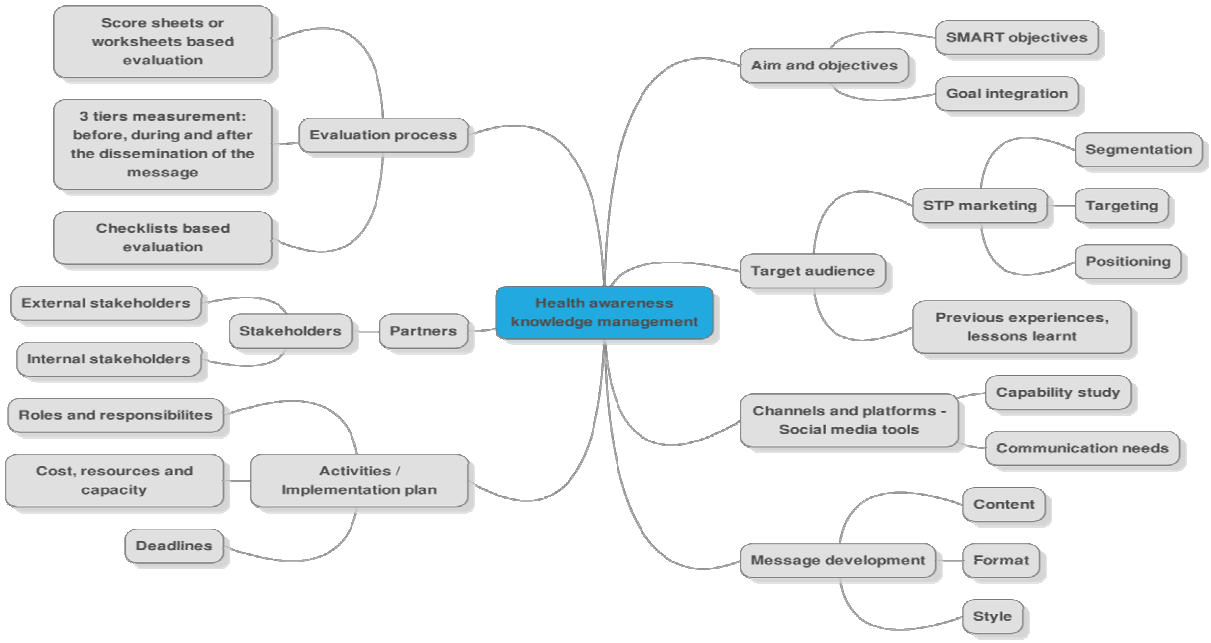


Fig. 5: First level of mind map managing the health awareness knowledge

The key components of the health awareness knowledge management process identified from literature review and industrial experiences are the aim and objectives, target audience, channels and platforms, message development, activities, partners and evaluation. According to these components a well-structured A3 template is developed to represent visually the health message development and dissemination process. The idea of the template derives from A3 thinking and its purpose is to provide a deep, fact-based understanding of the process that can be easily shared with others and evaluated for the future improvements.

This tool should be used in A3 size in order to help the health organisations in better understanding of customers, the message development process and also in documentation. The customised A3 template consists of three different part reviewing the message development process (separated by columns):

- before the message development (1st column),
- during the message development and dissemination (2nd column),
- after the message dissemination (3rd column).

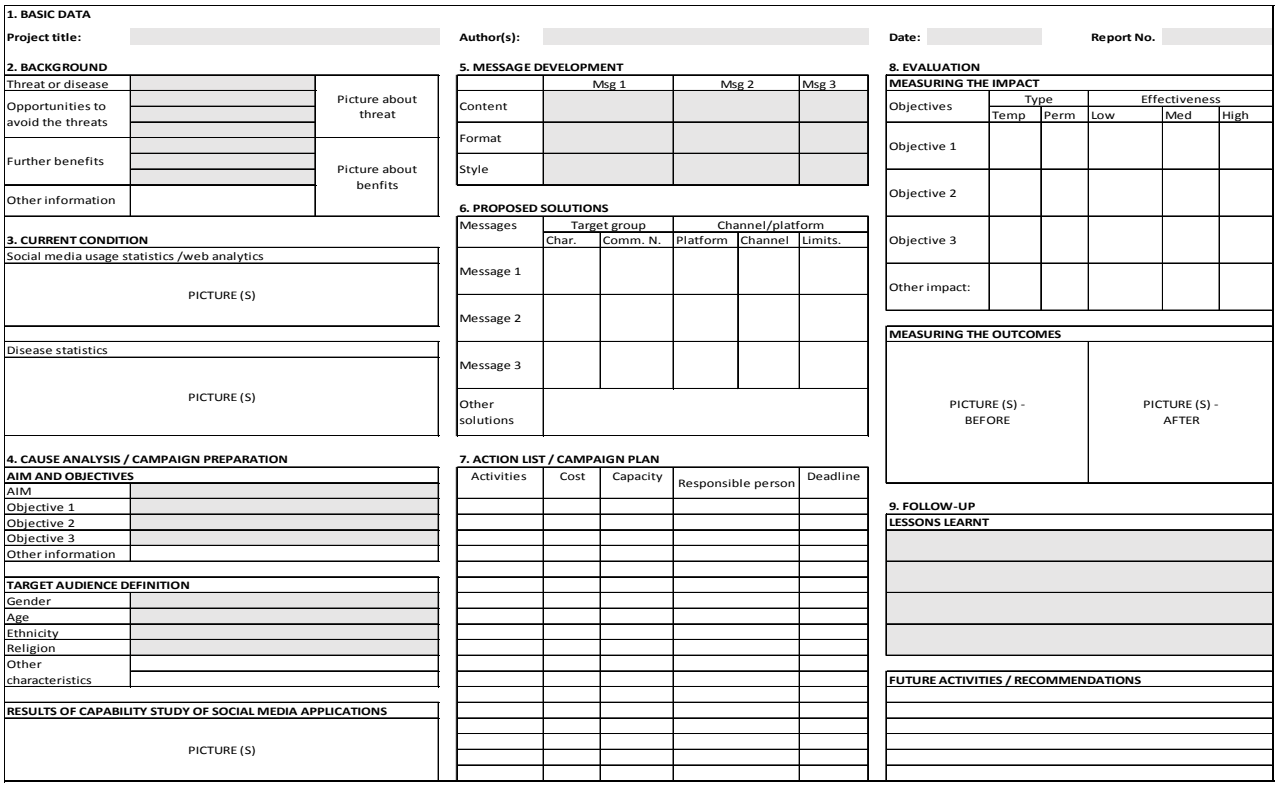


Fig. 6: Health awareness knowledge template

As a result of the extensive literature review, the comprehensive mind map and well-structured template the author was able to identify the generic process of the health awareness message development and dissemination with its key activities (HAKM framework) as can be seen also in Figure 7:

1. Assess the situation
2. Acquire the knowledge
3. Develop key messages
4. Plan the message dissemination
5. Pass the message(s)
6. Evaluate the work
7. Follow-up
8. Further PDCA (Plan-Do-Check-Act)

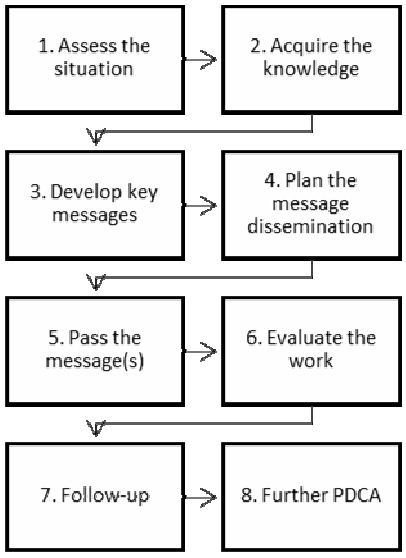
HAKM (Health Awareness Knowledge Management) Framework	
Objective	Based on the literature review, the discussions with my supervisor, my previous learnings in knowledge management and the good practices of health organisations a simplified framework has been developed in order to manage the health awareness knowledge.
Process steps	

Fig. 7: HAKM framework – generic process

The logic of the framework is the following:

- Each main step consists of different sub-steps with own objectives.
- Each level of the framework describes the objective of that particular level or step, the process steps, and the different tools and methods can be used to reach the output of that particular level. Example is shown by Figure 8:

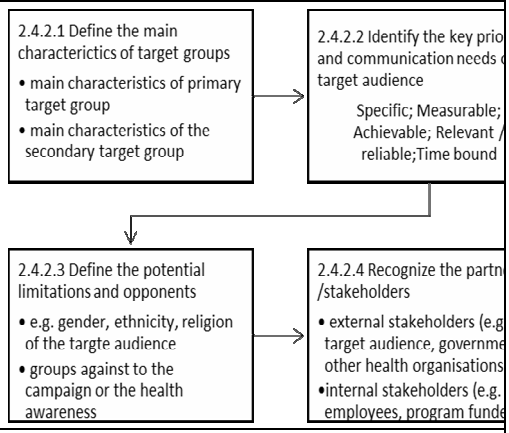
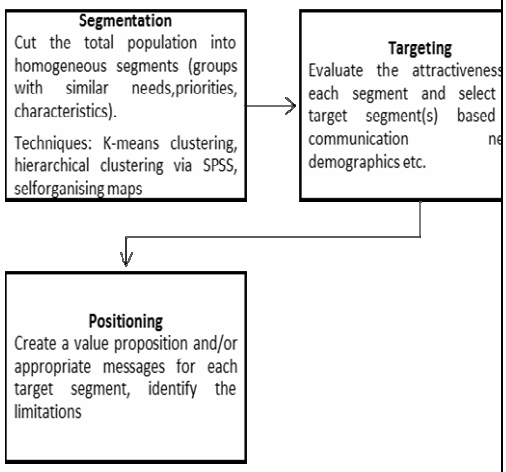
STEP 2.4.2: IDENTIFY THE TARGET AUDIENCE	
Objective	To identify and know the different target groups (primary and secondary target groups) in order to disseminate effectively the key messages of the organisation.
Process steps	
Tools and methods	Target audience definition: • via STP marketing:  • based on previous experiences, expert opinions, lessons learnt. Communication needs definition: • based on market research: o secondary market research: web analytics, statistics o primary market research: focus groups or consultations, surveys and questionnaires, in-depth interviews • based on previous experiences, expert opinions, lessons learnt.
Output (s)	Target audience characteristics

Fig. 8: HAKM Framework – Step 2.4.2.

- there are different relationships between A3 template and HAKM framework in some level – relations are signed in HAKM framework levels as it can be seen for example in Figure 9:

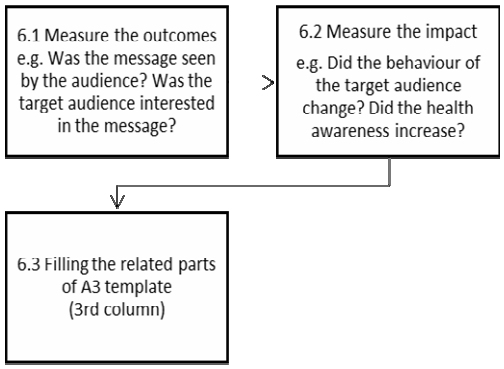
STEP 6: EVALUATE THE WORK	
Objective	To evaluate and measure the outcomes and impacts of the project (campaign) on health awareness and behaviour (or habits) of the public.
Process steps	
Tools and methods	Measuring the outcomes: scoresheets, worksheets, checklist, statistics: number of likes, shares and comments Measuring the impacts: 3-tiers measurement (before, during, after) through focus groups (using the same groups during the total process), surveys for pre-tests and post tests, in-depth interviews
Output (s)	Evaluation report

Fig. 9: HAKM Framework – Step 6.

Conclusions

Based on the literature review there is not a well-structured and generic process model or framework for health awareness knowledge management. Although various industrial experiences are available or acquired during the project, they do not show total identity apart from the basic ACME framework (that is very similar in case of other awareness management). Despite the many opportunities and various advantages that social media offers, there are some drawbacks it possesses in terms of health awareness communication. Health organisations need to know about limitations as well as opportunities during the preparation of health message dissemination as the engagement level of consumers can be increased exponentially by a detailed capability study and well-organised preparation. In order to represent visually all the available and acquired knowledge, a well-structured A3 template and HAKM framework were developed as standard formats of the health message development and dissemination process. With these tools, knowledge can be easily acquired, evaluated and illustrated to others.

In future work, a representative research is planned which examines the consumer behaviour in terms of health awareness. Moreover, based on the developed framework it is highly recommend to create a computer-assisted message design and authoring system that can identify the elements of the message content (according to the first part of designed A3 template), and develop the most suitable message(s) for the target audience.

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