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A study on the impact of Digital Marketing on Knowledge Valorisation from Publicly Funded Research Institutions to Industry : the role and current status of Digital Marketing in the context of Horizon 2020 funded initiatives in supporting the knowledge valorisation and how to improve its impact for the upcoming Horizon Europe initiatives

Lara Titan

▶ **To cite this version:**

Lara Titan. A study on the impact of Digital Marketing on Knowledge Valorisation from Publicly Funded Research Institutions to Industry : the role and current status of Digital Marketing in the context of Horizon 2020 funded initiatives in supporting the knowledge valorisation and how to improve its impact for the upcoming Horizon Europe initiatives. Business administration. 2019. dumas-02379978

HAL Id: dumas-02379978

https://dumas.ccsd.cnrs.fr/dumas-02379978v1

Submitted on 26 Nov 2019

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GRENOBLE iae Graduate school of Management

Internship / work-study / research dissertation

A study on the impact of Digital Marketing on Knowledge Valorisation from Publicly Funded Research Institutions to Industry

''The role and current status of Digital Marketing in the context of Horizon 2020 funded initiatives in supporting the knowledge valorisation and how to improve its impact for the upcoming Horizon Europe initiatives.''

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Date: from 15/04/19 to from 30/09/19

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Master 2
Program Applied Corporate Management
2018 - 2019

UNIVERSITÉ Grenoble Alpes

ESRF The European Synchrotron

Preface:

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Executive Summary

This internship report entitled ‘’ A study on the impact of Digital Marketing on Knowledge Valorisation from Publicly Funded Research Institutions to Industry’’ in compliance for the program M2 Business Administration-Applied Corporate Management at IAE Grenoble is a study not solely focused in the aspect of business management in general but in particular will also look through the aspect of international political institutions and more importantly the aspect of publicly funded research institutes with regard to the role of research and innovation for the overall betterment of society by contributing to the growth of economy and providing jobs opportunities for the population.

The scope of the internship report covers the period of Horizon 2020 framework from 2014 to 2020 and of the next EU framework on research and innovation which is the Horizon Europe framework from 2021 to 2028 with the regard to their activities with the industry. The industries concerned under the European projects that will be discussed in this study are the following: Agriculture & Food, Consumer Products and Health & Medtech. Among the many projects that were created under the Horizon 2020 framework program, projects that will be focused upon on this report are NFFA and EARIV primarily on their Digital Marketing activities which was the student’s main focus of internship.

The Purpose of this study is as follows: The first purpose of this study is to explain what is the Knowledge Valorisation as a process. Afterwards, the role and impact of Digital Marketing Activities to the Knowledge Valorisation process of European projects under the Horizon 2020 framework programme of the European Union will be discussed by looking through and comparing the website and social media management of selected projects in detail. Lastly, this study aims to come up with recommendations for other possible digital marketing strategies for the next framework programme, Horizon Europe, based on the current status of Digital Marketing platforms used by the European projects discussed on this study and on upcoming trends in the digital world.

It is always worthy of time and effort for the Publicly funded Research Institutes to look for alternative and/or new social media platforms which they think will work best on the projects that they handle or even to the general interest of their institute. The Digital world being a very fast paced environment has always something new to offer in the market. As we will see later on this study, there is a general direction from the European Commission on how European research and innovation projects should manage their Digital marketing activities particularly on the Social Media management and choosing which digital communication would be best for their project but since following the whole EU guide is not obligatory and each projects have different purpose and interest there is no single result and it varies from case to case.

KEY WORDS : Valorisation, Research, Initiative, Industry, Digital Marketing, Community Management, Innovation, Horizon 2020, Horizon Europe, Research and Innovation projects, European Commission

MOTS CLÉS : Valorisation, Recherche, Initiative, Industrie, Marketing Digital, Community Management, Innovation, Horizon 2020, Horizon Europe, Projets de recherche et innovation, Commission européenne

ACKNOWLEDGMENTS

First of all I would like to thank God and my family especially my parents for allowing and giving me all the support that i need to be able to go to France in order to pursue further studies on business management

The second group of people I would like to thank are my colleagues from the Business Development Office Unit of the European Synchrotron Radiation Facility in Grenoble, France in particular my host organization and thesis mentor, Deputy Head Mr. Ennio Capria for giving me the opportunity to be their marketing trainee for this year. Equally important that I would also like to mention are the moral and academic support of our unit head Dr. Edward Mitchell, BDO marketing Assistant Christian Pazos, Industrial Liason Engineer Cecile Girardot and Co-Trainee for Nano Safety Noor Nawaz throughout my internship period at the esrf. Also worth thanking for are the Administration and Human Resources staff at the ESRF for helping me with the administrative procedures I needed to accomplish at the beginning of my internship, Administration Director Luis Sanchez Ortiz, HR officer Evelyne Jean-Baptiste and HR Assistant Caroline Mulot.

Having the opportunity to do an Internship for our Masters programme at IAE Grenoble will not be possible without the academic and career guidance of all of our professors for the last two semesters especially of our Programme Director Sonia Bechka and of our University Mentors who happens to be Emily Rankin in my case. Other IAE grenoble staffs that I would also like to mention and to thank for are the faculty secretaries Julie Ruffet and Virgine Tizon for their assistance in processing and organizing university documents needed for our Internship.

And lastly, my biggest thanks and appreciation to my colleagues from our M2 Applied Corporate management Programme at IAE Grenoble and also from the M2 International Management class for all the support and overall learning experience journey we have all shared for this academic year 2018-2019.

Lara Ivane A. Titan

European Synchrotron Radiation Facility

August 29, 2019

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FOREWORD

Innovation is the ensemble of actions and processes capable to transform an idea or device into a product or service that can provide a tangible return on the investment. In the modern technological societies where the creation of wealth and richness is associated to the benefit obtained with the production of goods, a high rate of innovation is a clear multiplier to guarantee growth and improve the quality of life, for the general interest. Academia and publicly funded organisations are the undiscussed leaders in the production of knowledge. They are curiosity driven and operate under the guidance of the scientific method, driven by the motivation of discovering and producing new knowledge, which is often delivered to the society in the form of publications. On the other side, private companies have the role to produce goods and services to satisfy the needs of people and in this way improving their quality of life. Their supreme guidance is the business plan, that, when properly implemented can allow the company to make a benefit leveraging the response to a need of their customers. If the main reward of an academic is materialised in the act of the "discovery", the one from a company is centred on the "invention", that ultimately it is nothing more than "applied discovery", i.e. undetermined knowledge coupled with a human need finalised to the elaboration of an economically viable solution to a meaningful problem.

In such an economic system, it is clear that the rate of creation of wealth in the society is proportional to its aptitude to innovate, which is directly correlated to its capability to transfer the knowledge from academia to industry. The strategy of the European Commission for 2020 focuses on the ability of the European Union (EU) to create millions of new jobs to replace the ones lost during the recent economic crisis, and on the consideration, that future living standard will depend on the ability of the economic environment to stimulate innovation in products, services and business models. One of the instruments that the Commission uses to stimulate the creation of knowledge is Horizon 2020, a programme of funding dedicated to scientific research. Within the scheme the Commission asks explicitly to the beneficiaries of these grants to put in place an implementation plan in order to maximise the transfer of the results obtained via the scientific programme to the industry (and then the society) and consequently the impact of the investment.

One of the key factor of success for this transfer to occur, it is the creation of a fertile environments (or ecosystems) where industry and academia have a good level of exchange and industry is aware of what is going on in academia. The use of the digital marketing tools would be a game changer to take on this challenge, but nonetheless still little knowledge and little experience exist within the community of the research institutions about the best ways to benefit and use these tools, and often their potential is underestimated. Furthermore, most of the main digital marketing tools have been designed for ordinary applications, and not necessarily taking into consideration the specificity of scientific communication produced with the objective to inspire and promote valuable innovation. In this respect, the questions addressed by the present thesis are concrete, pertinent and would definitely provide useful information to the teams in charge for communication in research initiatives funded by the Commission.

ENNIO CAPRIA

INTRODUCTION

In today's 21st century a lot of industries ranging from Agriculture to Transportation rely heavily on research and innovation for the improvement of their products and/or services thanks to the technological advancements of the last decades. This phenomenon allowed different industry-related practices to flourish such as the 'Knowledge Valorisation' which refers to the utilisation of scientific knowledge in practice. Examples include developing a product or medicine, or applying scientific knowledge to a system or process. The European Union's current framework program on research and innovation, Horizon 2020 encourages the Knowledge Valorisation from research facilities to industry in order to create more job opportunities in the region and increase Europe's competitive advantage in the field of science and technology which has been a backbone of the economic prosperity in Europe.

The Business Development Office provides industry with privileged route to the European Synchrotron Radiation Facility, matching their problems to ESRF's facilities and expertise. Its mission consists of the following three core activities: Selling services and instrumentation, leveraging its intellectual property and creating and scouting R&D programmes with industry. Recognizing the vital role of Digital Marketing in the promotion of any firms nowadays, publicly funded research facilities are no different. The researcher's internship at the BDO department of ESRF has the main mission to promote the Nanoscience Foundries & Fine Analysis (NFFA) H2020 project to Industry through Digital Marketing and Events Management. This includes handling and improving the project's website, social media accounts, doing email campaigns, helping on organizing industry related events of the ESRF or one of its project or facility partners and harvesting case studies. Generally the NFFA offers Industry assistance to their R&D projects at the nanoscale by providing a single entry, free of charge easy to access platform which is subject to peer review.

For the purpose of this research, the questions to be answered at the end of this study would be: (1) *Are the Digital Marketing Strategies used by the H2020 funded European projects similar or different?* And (2) *Based on the current status of Digital Marketing platforms used by the European projects discussed on this study and on the newest trends in*

the digital world, what other online platforms or tools can be recommended to them for the upcoming Horizon Europe framework programme in order to increase visibility to Industry ?

PART 1 :

-

KNOWLEDGE VALORISATION IN THE CONTEXT OF EU HORIZON FRAMEWORK PROGRAMMES

CHAPTER 1 – WHAT IS KNOWLEDGE VALORISATION ?

The first chapter of this research study will orient readers about the concept of Knowledge Valorisation which is going to be the main topic of this research study. Later on this chapter, its process and the exisiting mechanisms for its application will also be discussed.

I. KNOWLEDGE VALORISATION EXPLAINED

Knowledge Valorisation according to Buzink et al., (2014) is defined as 'The process of making knowledge gained from scientific education and research available or useful for economic or societal utilization, or translating it to competing products, services, processes and new entrepreneurship'. The knowledge can be from the scientific academe for industrial use of from research insitutions for either academic or industrial use. In the European context, Knowledge Valorisation is seen as an excellent way of boosting the region's economy and providing job opportunities to its people, the very reason why the European Union have started initiatives in research and innovation over the last three decades.

Figure 1 : Logo Grenoble IAE

II. THE PROCESS LEADING TO KNOWLEDGE VALORISATION

In explaining the Knowledge Valorisation further it is also important to look through the stages involved leading to its application.

A. Bridging

The first step is what is termed as 'bridging'. This involves the act of building foundation or network with other parties that could be beneficial for your institution. Also termed as 'relation capital' one can usually gain professional networks by attending and/or participating on different events related to, getting acquainted with social media, etc. Then a follow-up action should be next soon which is normally done by having a business to business (B2B) meeting, on-site visit and sending business proposals through email.

B. Knowledge Valorisation

As mentioned earlier in this study knowledge valorisation is a process of making results or information obtained from a research study executed by an academic institution or a research institution which can be either public or private, available for industrial or societal use. However, readers must not be confused between knowledge valorisation and knowledge transfer as there is a thin line that separates them: Whereas knowledge transfer highlights the formal transfer of academic knowledge to parties in the commercial sector for economic benefit, knowledge valorisation takes a broader scope and looks at the creation of societal value from knowledge by translating research findings into innovative products, services, processes (Van de Burgwal, et al., 2017).

Once contacts between concerned parties have been established and the scenario for the knowledge valorisation process has been set (ex: Contract between two or more concerned parties has been signed) the following Knowledge Transfer mechanisms can be applied:

1. **Publications** - Publications in referred journals / books, other reports /publications, open source publication, presentations at conferences and patent texts.

2. **Exploiting intellectual property** - Selling IP, licensing IP (particularly patents) to companies for commercialisation and creating spin-outs based on PFRI (typically licensed to the spin-out) and involving PFRI personnel/ faculty.

3. **Contract R&D and consultancy** - Contract R&D : formal contract between a PFRI, for the PFRI to conduct novel research to create new knowledge on behalf of a business and Consultancy : formal contract between a company and a PFRI for PFRI personnel to apply exisiting knowledge to company's business (ex : advice, written reports, technical adaptation).

Source: 'Boosting Open Innovation and Knowledge Transfer in the European Union: An independent expert group report on Open Innovation and Knowledge Transfer' (Dvorak et al., 2014)

CHAPTER 2 – VALORISATION OF KNOWLEDGE UNDER HORIZON FRAMEWORK PROGRAMMES

This chapter will take a look on the last two framework programmes of the European Union for Research and Innovation namely Horizon 2020 and Horizon Europe.

I. HORIZON 2020

According to the European Commission, Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. The key challenge to address for the duration of this framework programme is to stabilise the financial and economic system while taking measures to create economic opportunities.

A. Overview

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.

This European initiative has been created as it is seen as a means to drive economic growth and create jobs, Horizon 2020 has the political backing of Europe's leaders and the Members of the European Parliament for they believe that research is a must investment if one is to think of the future. Research is an investment for Europe's future and for that, EU officials programmed the blueprint of Horizon 2020 to help in providing smart, sustainable and inclusive jobs for its citizens. This is made possible by coupling research with innovation in order to ensure Europe's excellence in science, in industrial leadership and also to be able to tackle societal challenges that will result to the amelioration of public-private partnerships for more efficient and more effective sharing of innovation across the region.

By improving communication and partnerships between public and private sectors it also means that red tape will be reduced and so particpants can focus on what really matters which therefore leads to quicker implementation of projects and faster results.

The EU Framework Programme for Research and Innovation will be complemented by further measures to complete and further develop the European Research Area. Similar with the idea of single market, the European Union aims to break down barriers in innovation to

create a real integration in the field of science and technology. For instance, less money will be spent on experiments from the part of the research facilities since the results from labs across the region can be shared and can be freely accessed by the other labs thanks to the EU policy on sharing of study results in exchange of free of charge access to its different initiatives. This coordinated approach as promoted by Horizon 2020 – helps to ensure that every euro spent on

B. How it works

- Who may apply?

(1) For standard research projects – a consortium of at least three legal entities. Each entity must be established in an EU Member State or an

Associated Country.

(2) For other programmes – European Research Council (ERC), SME

Instrument, the co-funding of national or public sector calls or programmes, coordination and support, training and mobility – the minimum condition for participation is one legal entity established in a Member State or in an Associated Country.

Note : In general, legal entities established in any country and international

organisations, may participate.

- Action types

(1) Research and innovation actions

Funding for research projects between partners from different countries open to industry and academia. This action aim to tackle clearly defined challenges, which can lead to the development of new knowledge or a new technology.

(2) Innovation actions

Funding is more focused on closer-to-the-market activities. For example,

prototyping, testing, demonstrating, piloting, scaling-up etc. if they aim at

producing new or improved products or services. Open to consortia of partners from different countries, industry and academia.

(3) Coordination and support actions

Funding covers the coordination and networking of research and innovation projects, programmes and policies. Funding for research and innovation itself is covered elsewhere. This action is open to single entities or consortia of partners from different countries, industry and academia.

(4) Frontier research grants from the European Research Council

The ERC funds excellent young, early-career researchers, already independent researchers and senior research leaders. Researchers can be of any nationality and their projects can be in any field of research. Funding for their respective projects are evaluated based on their scientific excellence by a single or multinational research team led by a principal investigator.

(5) Support for training and career development – Marie Skłodowska-Curie Actions

Funds available for both amateur and experienced researchers of any nationality coming from the public and private sector, technical staff, national/regional research mobility programmes.

(6) SME Instrument

This instrument is targeted at highly innovative SMEs which aims to develop their growth potential. It offers lump sums for feasibility studies, grants for an innovation project's main phase (demonstration, prototyping, testing, application development...); lastly, the commercialisation phase is supported indirectly through facilitated access to debt and equity financial instruments. For this opportunity only SMEs can participate, either a single SME or a consortium of SMEs established in an EU or Associated Country.

(7) Fast track to innovation

This funding started on 2015 as a pilot action. Continuously open, innovator-driven targets innovation projects addressing any technology or societal challenge field. This action is open to Industry, including SMEs, with a minimum of three and maximum of five partners and a maximum EU contribution of €3 million per project.

- Funding rates

In Horizon 2020 there is one single funding rate for all beneficiaries and all activities in the research grants. EU funding covers up to 100 % of all eligible costs for all research and innovation actions. For innovation actions, funding generally covers 70 % of eligible costs, but may increase to 100 % for non-profit organisations. Indirect eligible costs (e.g. administration, communication and infrastructure costs, office supplies) are reimbursed with a 25 % flat rate of the direct eligible costs (those costs directly linked to the action implementation).

- Checks and audits

Only coordinators in projects requesting funding from the Union of €500, 000 or more will be subject to a financial viability check, in which they must prove that they have the resources to implement the project. The European Commission audits project participants up to two years after payment of the balance. The audit strategy is focused on risk and fraud prevention.

- Access rights

Access rights are a right to use results or background of another participant in a project. Access rights are enjoyed by participants to implement the project or exploit their results, by the EU for non-commercial policy purposes, and by Member States in the area of Secure Societies for non-commercial policy purposes.

- Sharing results while protecting IPR

Each participant must disseminate the results it produces and must claim its ownership as early as possible. When publishing results in scientific publications, open access to the publication must be ensured. This guarantees that research results funded by EU taxpayers are available for free to everyone. Exceptions only apply to protect intellectual property rights (IPR), security or legitimate interests. IPR belongs to the team that generates the results. In very specific circumstances, joint-ownership may apply. Once results have been generated the joint owners may agree on a different ownership system.

- Ethics and research

Ethics is an integral part of research and a driver for research excellence.

All activities funded under Horizon 2020 shall comply with ethical principles and relevant national legislation. The ethical principles include the need to avoid breaches of research integrity, in particular any form of plagiarism, data fabrication or falsification.

II. HORIZON EUROPE

Horizon Europe is a planned 7-year European Union scientific research initiative that is created to succeed the present Horizon 2020 program. The European Commission drafted and approved a plan for the Horizon Europe to raise EU science spending levels by 50% over the years 2021-2027.

A. Overview

The ambitious EU research and innovation framework programme (2021-2027) aims to :

- strengthen the EU's scientific and technological bases and the European Research Area
- boost Europe's innovation capacity, competitiveness and jobs
- deliver on citizens' priorities and sustain our socioeconomic model and values

What's new in Horizon Europe?

*Support breakthrough innovation → European Innovation Council

*Create more impact through mission-orientation and citizens' involvement EU-wide R&I

→ R & I missions

*Reinforce openness → Open science policy

*Rationalise the funding landscape → New approach to partnerships

* Reduce administrative burden → Simpler rules

The new programme will be implemented through three pillars:

• The Open Science pillar (€25.8 billion) supports frontier research projects defined and driven by researchers themselves through the European Research Council (€16.6 billion), funds fellowships and exchanges for researchers through Marie Skłodowska-Curie Actions (€6.8 billion), and invests in world-class research infrastructures.

• The Global Challenges and Industrial Competiveness pillar (€52.7 billion) directly supports research relating to societal challenges, reinforces technological and industrial capacities, and sets EU-wide missions with ambitious goals tackling some of our biggest problems. It also includes activities pursued by the Joint Research Centre (€2.2 billion) which supports EU and national policymakers with independent scientific evidence and technical support.

• The Open Innovation pillar (€13.5 billion) aims to make Europe a frontrunner in market-creating innovation via the European Innovation Council (€10 billion). It will help develop the overall European innovation landscape, including by further strengthening the European Institute of Innovation and Technology (EIT) to foster the integration of business, research, higher education and entrepreneurship (€3 billion). Horizon Europe will double the "sharing excellence" support to EU Member States in their efforts to make the most of their national research and innovation potential.

B. Issues that will be covered

The following are the priority areas of the of the Horizon Europe budget:

(1) Cohesion and Values - Regional development, support for reforms, anti-counterfeiting, EMU, investing in people (social, education, volunteer and media programmes), justice, rights.

(2) Natural resources and environment - Agriculture, rural development, maritime, fisheries, environment, climate

(3) Single market, innovation and digital - Single market, investment, research and innovation, tax, customs, small and medium-sized businesses, competitiveness, space programme, Euratom, Connecting Europe Facility.

(4) Migration and border management - Asylum, migration, integrated border management.

(5) Security and defence - Internal security, nuclear safety and decommissioning, defence, crisis response.

(6) Neigbourhood and the world - Neighbourhood, development, international cooperation, humanitarian aid, pre-accession, Common Foreign and Security Policy, funds for overseas countries/territories.

C. Adoption Timeline

The Timeline below explains the important dates with regard to the planning and execution of the Horizon Europe framework programme.

(1) 2 May 2018

The Commission adopts its proposal for the next EU long-term budget (MFF)

(2) 7 June 2018

The Commission adopts its proposal for Horizon Europe

(3) 2019-2020

The Council and European Parliament negotiate and subsequently adopt the programme

(4) 1 January 2021

Horizon Europe is launched

Figure 2 : Horizon Europe Adoption Timeline

III. Selected Case Studies on collaborations with Industry

This sub-chapter will take a look on three case studies on collaborative projects between Industry and Publicly Funded Resesearch Institutes such as the ESRF.

A. CONSUMER PRODUCTS

Goods for everyday use are constantly being developed by manufacturers. Innovation is the name of the game for the development of consumer products. Longer shelf life, better performance and lower production costs make an item more appealing for the consumer.

CASE STUDY : LONGER SHELF LIFE FOR HAIR CONDITIONERS

Company : Unilever

Challenge

Hair conditioners are based on a dispersion of liquid crystalline phases that work with the flow of water to lubricate and protect hair fibres. The stability of such products is vital for guaranteeing consistent performance. The validation of stability can be done with characterisation techniques that measure physical properties of the bulk product, such as rheology, pH, light scattering and calorimetry. However, it is difficult to understand what and how underlying microstructures influence the bulk properties and any changes that occur over time.

Sample

Ingredients of conditioner products and their permutations.

Solution

The team used small angle X-ray scattering at ID02 to monitor the microstructure evolution of the products at critical intervals during a three-month trial.

Benefits

The experiment proved instrumental in providing a mechanistic understanding of how a hair conditioner microstructure evolves with the passage of time, from factory to consumer.

Reference: https://www.esrf.eu/home/Industry/applications-and-case-studies/consumer-products.html

B. HEALTH AND MEDTECH

Every day we encounter health and medical technology, from devices and implants, to diagnostics, vaccines, drug delivery vehicles and devices. Understanding materials and their behaviour enables much of the modern applications of this technology.

CASE STUDY : IMPROVING DRUG DELIVERY DEVICES FOR ASTHMA

Company

Prior PLM Medical, a company that specialises in supporting the medical and pharmaceutical industry to develop drug delivery devices from initial idea to end of product life.

Challenge

According to the World Health Organisation, over 300 million people worldwide suffer from respiratory diseases such as asthma and chronic obstructive pulmonary disorder

(COPD). Inhaled medicine, typically in the form of pressurised metered dose inhalers (pMDI) and dry powder inhalers (DPI), is used to treat these diseases due to the direct delivery and reduced side effects. However, device/treatment efficacy is often quite poor with only 10-20% total lung deposition for most devices on the market. The dynamics of the plume up to the point at which it exits the device are thought to influence speed and aerodynamic particle size distribution (APSD) and are considered important to drug transport to the lungs. However, this internal behaviour within the inhaler is not well understood due to the transient nature of the event and the difficulties in accessing the internal chambers within the device.

Sample

PMDI devices were investigated with a range of canisters, containing either HFA 134a or HFA 227ea propellants and various valve types, inserted into the actuator.

Solution

A monochromatic X-Ray beam was used at beamline ID19 at the European Synchrotron Radiation Facility. A Prior PLM Medical custom-built fixture was used to shake and actuate the inhalers. Phase contrast X-ray video of the dose release event from each inhaler showed the propellant mixture behaviour inside the canister and actuator. In addition mechanical interactions could be viewed taking place. This has provided new insights and is of value as a validation method for modelling efforts. X-rays are capable of penetrating inhaler devices to visualise internal features but conventional techniques, for example industrial CT, are too slow to investigate fast events such as inhaler dose release. The ESRF beamlines have sufficient intensity to achieve the required temporal resolution and the phase contrast X-ray imaging technique gives excellent contrast for the low atomic number polymer/propellant/drug materials involved.

Benefits

“Our work at the ESRF has allowed us to see what’s happening inside both development stage and off-the-shelf commercial inhaler devices and has enabled our clients to make informed design decisions. We also use the facility for our own internal R&D programmes and are very excited by the prospect of the ESRF Extremely Brilliant Source.” Alan McKiernan, Research Manager Prior PLM Medical, physicist.

Reference: https://www.esrf.eu/home/Industry/applications-and-case-studies/health-and-medtech.html

C. AGRICULTURE AND FOOD

Foods are complex mixtures of components with diverse thermal, mechanical, rheological and ageing properties. Synchrotron techniques allow researchers to correlate the macroscopic properties of a sample with its microstructure, helping companies meet consumer demand for nutritional value, novelty and ease of use, across products ranging from bread to butter.

CASE STUDY : TRACKING IRON IN PROCESSED GRAINS

Company

University of Ljubljana (Slovenia), Chalmers University of Technology (Sweden), University of Nova Gorica (Slovenia), Jozef Stefan Institute (Slovenia), Nutrition Institute (Slovenia).

Challenge

Grains is a main component in the human diet and a major source of essential mineral elements. Unfortunately, many of these elements, such as magnesium, zinc or iron, for example, are tightly bound in the so-called phytate salts and the body does not easily absorb them. There are some ways of making these elements more bioavailable, namely through thermal and mechanical processing, soaking, fermentation, and germination/malting of seeds and grain. These processes enable the release of tightly bound mineral elements, especially those bound in phytate. Among mineral elements, iron is particularly poorly bioavailable, and this is especially problematic in vegetarian diet. Researchers are now working to determine speciation and bioaccessibility of iron in processed grains in comparison to un-processed grains. Knowing only the amounts of iron in foods is not enough, researchers need to determine speciation and binding states of iron to understand the bioavailability of iron. Having great concentrations of iron is not effective if all iron is bound too strongly to be absorbed during digestion. Fortification is a costly procedure and not very efficient in the case of iron, as iron is easily reduced and can affect the taste of the produce. Promoting staple food as a good source of bioavailable iron, especially for gluten intolerant individuals (they can consume buckwheat), would be interesting for industry.

Sample

Tartary buckwheat is a gluten-free crop with great potential as a wheat substitute. It has relatively high concentration of iron, which occurs predominantly bound in phytate. The team studied the mineral element concentrations and iron speciation in grains and their processed counterparts, namely groats (hydrothermally processed grains that have the outer grain layers removed) and sprouts (7-day-old seedlings).

Solution

The ESRF micro-X-ray fluorescence spectroscopy's beamline ID21 provided the spatial distribution of mineral elements and iron speciation in grains, groats and sprouts It also showed that germination affects the mineral element distribution and speciation of iron. They found that iron bioaccessibility was 4.5-fold greater for grains than groats, suggesting that iron is more bioaccessible in the outer layers of un-processed grains than in the rest of the grain. Bioaccessibility of iron in sprouts was lower than in the grains indicating that germination does not favourably affect the bioaccessibility of iron.

Benefits

This study showed that iron in the outer layers of the grain is most bioaccessible. It would be thus useful to include part of these layers in the flour and in products produced from tartary buckwheat flour to ensure greater iron intake. Iron dense products are highly desired for alleviation of iron deficiency, which occurs particularly in pregnant and breastfeeding women, children and elderly.

Reference : https://www.esrf.eu/home/Industry/applications-and-case-studies/agriculture-and-food.html

PART 2
-
DIGITAL MARKETING ACTIVITIES IN SELECTED EUROPEAN PROJECTS UNDER HORIZON 2020 : THE EARIV NETWORK AND THE NFFA PROJECT

CHAPTER 3 – DIGITAL MARKETING AND SOCIAL MEDIA GUIDE FOR EU FUNDED R&I PROJECTS

Chapter 3 will discuss about what is Digital Marketing in general and under which the benefits of Social Media as a platform will be discussed in order to reach out the targeted audience of EU R&I projects and finally followed by guidelines from the European Commission on using the Social Media platform.

I. WHAT IS DIGITAL MARKETING AND WHY USE SOCIAL MEDIA ?

Digital Marketing is defined as the marketing of products or services using digital technologies, mainly on the Internet, but also including mobile phones, display advertising, and any other digital medium. Social media on the other hand is defined as one of the digital marketing *channels* used in order to reach the target audience.

Target audiences for the EU funded R&I projects consists of the following : Academic Institutions and different industries : Aerospace & Automotive, Advanced Materials, Agriculture & Food, Catalysis & Chemistry, Consumer Products, Energy, Engineering & Metallurgy, Health, Mining, Nanotechnology and Pharma.

In the context of EU Funded R&I Projects, the purpose of the Social Media as a platform to reach people can be either as a Communication channel or a Dissemination channel. But what is exactly the difference between them ? The summarized table below shows their main differences :

COMMUNICATION	DISSEMINATION
Covers the whole project including the results	Covers result only
Starts at the beginning of the project	Starts only once the results of a project has been published
Multiple audience (ex : Media and general public)	Specialist audiences like the academe, industry and they may use the results in their own work.
Informing and engaging with society, to show how it can benefit from research	Enabling the take-up and use of results

Figure 3 : Communication and Dissemination comparison table

Having explained the two main activities of the Social Media as a platform of EU projects under Horizon 2020, the following below are the advantages of using the this platform :

- manage your own brand identity and gives you the opportunity how to use influence in debates on science and innovation with a wider audience

- build networks to help you find new research partners among colleagues and potential graduate students, accessing additional expertise from all over the world

- informally pre-review works in progress, gaining consensus on and/or feedback about your work

- crowdfund research

- recruit volunteers

II. RULES THAT MUST BE FOLLOWED

A. First Steps

The following are the first steps to be followed on deciding whether to use Social Media or not for a particular project :

- analyse the pros and cons of using social media for your project ('SWOT' & 'PEST' analysis)

- identify your target audience

- ask yourself if you can reach them using social media (which platforms?)

- identify which consortium partner would be best to lead this.

B. Other rules to be followed :

* Article 19 — Submission of deliverables

* Article 20 — Reporting — Payment requests

* Article 29 — Dissemination of results — Open access — Visibility of EU funding

* Article 34 — Ethics and research integrity

* Article 37 — Security-related obligations

* Article 38 — Promoting the action — Visibility of EU funding

* Article 39 — Processing of personal data

C. Acknowledging EU funding

All communication related to the project (including electronic communication, using social media, etc.) and all infrastructure, equipment or major results funded under the grant must:

(1) display the EU emblem

Figure 4 : EU Emblem

And (2) include the following text:

This project has received funding from the [European Union's Horizon 2020 research and innovation programme][Euratom research and training programme 2014-2018] under grant agreement No [number].

III. Social Media Strategy

To avoid potentially wasting time with unfocused, open-ended use of social media, decide on a detailed social media strategy, as part of your project's communication and dissemination plan.

This should cover the following points:

WHERE— which accounts and platforms will you use?

WHO— who is your target audience?

HOW?— what impact do you want to have and how will you assess this?

WHAT?— which content do you want to share?

— how much time will you need to commit to this task?

WHEN — what is the right time to share your content?

— how often you should post on your account ?

A. Twitter

What can you post?

Text of up to 280 characters. This excludes media attachments (photos, images, videos, etc.) and quoted tweets (displaying someone else's tweet within your own) but includes links (a URL is always altered to 23 characters).

How can you use it?

To share short comments, make announcements that can instantaneously reach a large audience or retweet relevant content.

You can also use Twitter groups to cluster a group of projects on a similar topic.

Figure 5 : Twitter Logo

Create your project **handle** and **hashtag** (if necessary) and use them consistently throughout the overall project implementation.

- Leverage any existing social media presence.

If the host institution, researchers, team members or other relevant organisations already have a strong, well established social media presence, get all these parties to communicate information about your project, on the basis of an editorial schedule that you create. This will help you reach already existing audiences.

- Use handles, such as @EU_H2020 in your tweets to maximise your visibility and be recognised as part of the H2020 community.
- Include emojis in your tweets.
- Twitter is becoming increasingly visual — post pictures, videos, GIFs or data visualisations to spark interest.
- Make Twitter lists to categorise your accounts into themes, or sign up for already existing lists. These lists can serve as channels for receiving news in your policy area and provide you with pools of people/organisations who can share your posts, if you tag them or message them directly.
- Share images and tag other Twitter accounts (up to 10), to build a relationship with your audience and make them aware (the account tagged receives a

notification) of content that might interest them, in the hope that they might want to retweet it.

B. *Facebook*

What can you post?

Text (no character limit), photos, GIFs, videos, links, etc.

How can you use it?

To showcase your project and results in an informal, highly accessible way.

Instead of using an individual account, Facebook profile, to share project information, we'd recommend one of these 2 options:

- Facebook page

The most convenient way to promote your project on Facebook, allowing you to post a variety of content including pictures, videos, event invitations or reports, as well as links to presentations or available multimedia material. Facebook pages have fans who like the page, not friends. A page has also the advantage to allow for several nominated users under different types of profiles (admin, editor, reviewer).

- Facebook group

Mostly used for exchanges among members (individuals). Unlike Facebook pages, where only the page administrator can post, anybody previously approved can share content with the group.

Figure 6 : Facebook Logo

Distinguish between and use the different types of page appropriately: Facebook profile, Facebook page, Facebook group, Facebook event.

- Vary your content (pictures, videos, polls, links…) and tag other profiles and pages in your posts, to reach a wider audience.
- Use Facebook Analytics to track the performance of your page.

C. *LinkedIn*

Figure 5 : LinkedIn Logo

What can you post?

Text (no character limit), photos, GIFs, videos, links, etc.

How can you use it?

A networking site for professionals, it can be used for groups and has established networks on specific topics. Several projects have chosen LinkedIn to create new groups, share content and connect with already established groups.

CHAPTER 4 – EUROPEAN ANALYTICAL RESEARCH INFRASTRUCTURES VILLAGE (EARIV) NETWORK

On this chapter the European Analytical Research Infrastructures Village (EARIV) network will be introduced and the researcher is going to discuss how this European initiative helps industry to connect easier and more quickly to research facilities. The latter part of this chapter will then discuss the website and social media accounts management of the said network by answering the 5W's method (Who, What, When, Where and Why ?)

I. ABOUT THE EARIV NETWORK

A. Overview

With the motto 'Research - analysis - innovation for Industry, Europe-wide, EARIV is a joint initiative led by a set of transnational Horizon 2020 projects and regional initiatives that promotes opportunities for industry to engage with European large-scale analytical research infrastructures (ARIs). Thanks to the EARIV network, it is easier now for industry to quickly and easily connect to relevant experts and to exploit the most appropriate, state-of-the-art tools.

The EARIV network is composed of 41 of the world's most advanced analytical research infrastructures (ARIs) which are large-scale facilities with advanced characterisation and cutting edge scientific discovery capabilities. The suite of instruments available at ARIs go far beyond than what conventional characterisation techniques can do by resolving smaller features, having faster phenomena and being more sensitive. They can explore deep inside materials and devices under real operating conditions. The following examples below are some of the abilities of ARIs of the EARIV network :

- Characterising inside materials or products completely non-destructively while they are in operation.
- Studying materials as they are being heated, cooled or deformed.
- Studying liquids being mixed in situ and tracking chemical reactions.
- Characterising materials at atomic, nano, and microscopic lengthscales.
- Studying dynamic phenomena from mill to femto second time resolutions (time-resolved studies).
- Imaging structures and defects hidden deep within materials without damaging them.

ARIs are perfect for developing industrial products or R&D as they give distinctive insights into exisitng products, support in giving solutions to technical uncertainties and makes innovation possible.

B. European Projects

Under the EARIV joint inititative of Horizon 2020 there are currently five European projects with each having different offer to Industry.

- ACCELERATE

  ACCELERATE is a Horizon 2020 project, supporting the long-term sustainability of large scale research infrastructures (RIs) through the development of policies and legal and administrative tools for a more effective management and operation of Research Infrastructures. To help secure RIs' sustainability, relevance and effectiveness, the project develops frameworks to improve the offer of tailored services to private and public entities, ensuring outreach to new scientific and industrial communities worldwide and defining common protocols for monitoring and assessing RIs' socio-economic impact.
- CALIPSOplus (Convenient Access to Light Sources Open to Innovation, Science and to the World)

  The aim of the CALIPSOplus project is to remove barriers for access to world-class accelerator-based light sources in Europe and in the Middle East. To this end more than 82,500 hours of trans-national access are provided to these research infrastructures and specific programmes are in place to teach new users how to

successfully use synchrotrons and FELs. Dissemination activities targeting industry are complemented by tailor-made support and access programmes for this user group. In parallel the consortium is collaborating on constantly developing technology to keep the facilities at the cutting-edge.

- EUCALL (European Cluster of Advanced Laser Light Sources)

  The European Cluster of Advanced Laser Light Sources (EUCALL) is a network between leading large-scale user facilities for free-electron laser, synchrotron and optical laser radiation and their users. Under EUCALL, they work together on their common methodologies and research opportunities, and develop tools to sustain this interaction in the future.

- NFFA-Europe (Nanoscience Foundries & Fine Analysis)

  NFFA-EUROPE sets out a platform to carry out comprehensive projects for multidisciplinary research at the nanoscale extending from synthesis to nanocharacterization to theory and numerical simulation. Within NFFA, 20 European facilities provide integrated access at no charge for publishable research and paid-for access for proprietary R&D.

- SINE2020 (Science & Innovation with Neutrons in Europe)

  SINE2020 is a consortium of 18 partner institutions from 12 countries and is funded by the European Union through the H2020 programme. It's Industry Consultancy programme shows the potential of neutron measurement techniques and technologies to interested companies. In order to attract industrial users to exploit the unique properties of neutron beams for R&D, SINE2020 can arrange for test meausrements and feasibility studies to be performed free of charge.

II. EARIV Website and Social Media Accounts Management

This subchapter discusses the website management of the EARIV network which is made possible by using the free website builder called 'WIX' and later on its Social Media accounts will be discussed which are LinkedIn and Twitter.

A. EARIV Website

Basically the information that you will see from the physical brochure of EARIV is very similar from that of its website. The pdf version of the brochure can also be downloaded from the webiste's home page. Common contents that can be both found on the website and on the two versions of the brochure (pdf and physical) are the overview of the network project, a little information about the European and Regional projects, location of the partner facilities showed in a map and their corresponding contact details. More importantly, since the EARIV network project focuses on the valorisation of knowledge from publicly funded research infrastructures to industry, both in the online and magazine version of the EARIV brochure there is a part dedicated to it. The industrial sectors that can be helped by the EARIV network is outlined and in each type of industry there is a written overview that discusses on how can the EARIV's ARIs (Advanced Research Infrastructures) can help them in their R&D needs or in their product development. This is further discussed by providing examples and/or actual case studies from past collaborations between industry and an ARI.

Apart from the above mentioned similarities between the EARIV website and of the brochure it is equally important to note that there are also minor differences between them. For instance on the website there is an area dedicated for events in which the projects under the EARIV network will participate whereas in the brochure since the contents there are fixed and cannot be edited there is no area provided for the events. Since there are multiple projects under EARIV network and in order to make the events update for each project simpler and easier to maintain, the EARIV team who manages the website decided to just put tab buttons on each project which when clicked will be forwarded to their respective website's events page. Last thing notable is the Contacts part, in the website the Contacts page is composed of a dialog box where the visitor can send their message to the EARIV team. There is an option where a visitor can write to the EARIV email instead and furthermore at the near bottom of the page, LinkedIn and Twitter clickable icons were placed which represents the social media accounts of the network. This way, a visitor of the website can stay connected with EARIV if he wishes to do so by following it either through LinkedIn or Twitter. As for the brochure the Social Media accounts were not showed and only the EARIV website and its email are to be found.

B. Social Media Accounts Management

For the EARIV network there are currently two Social Media platforms that are used for its Digital Marketing Activities: LinkedIn and Twitter.

(1) LinkedIn

Who?

- Connecting with the different professionals such as scientists and engineers who are working for one of the projects under the EARIV network (Accelerate, EUCALL, SINE2020, NFFA, CALIPSOplus, IRT-Nanoelec, Baltic TRAM and LINX), a project partner whether it is an academic institution or an industry, or simply a professional acquaintance.

What?

- LinkedIn is an American business and employment-oriented service that operates via websites and mobile apps. Founded on December 28, 2002, and launched on May 5, 2003, it is mainly used for professional networking, including employers posting jobs and job seekers posting their CVs. As of 2015, most of the company's revenue came from selling access to information about its members to recruiters and sales professionals. Since December 2016 it has been a wholly owned subsidiary of Microsoft. Currently, LinkedIn had 630 million registered members in 200 countries as of June 2019.

When?

- The LinkedIn account of the EARIV network has been created last year of 2018 by the Marketing officers under the Business Development office of the ESRF which leads the innovation and networking activities of the project. The account as of the moment, can be accessed by certain staffs who are currently working for one of the projects under EARIV (ex : Marketing staff of the IRT Nanoelec project, the Industrial Liason Engineer of the Institut Laue Langevin which is one of the partners of the SINE2020 project, etc.).

Where?

- As there are several projects under the umbrella of EARIV's network and its LinkedIn page can be accessed by several staffs from the network's different projects, the Institutions where it is being managed also varies depending on which EARIV project is the institution associated with (ex : Grenoble, France (ESRF) & Trieste, Italy (National Council Research) for the NFFA)

Why?

- EARIV's LinkedIn account has been created not only to recruit potential talents who are fit for the needs of the projects under EARIV such as project engineers, interns, post-docs, etc. which is the primary purpose of the LinkedIn platform in the first place but also to be able to connect with any individual working for industry which is the target of the EARIV network. Sharing latest updates from the projects, new scientific discoveries with the consortia, latest partnerships, project opportunities/ offer, etc. are also some of the main purpose.

(2) Twitter

Who?

- Similar with Facebook, Twitter is a social media platform can be accessed by the general public which can be anyone either from your professional network or or from your personal network.

What?

- Twitter is an American online microblogging and social networking service on which users post and interact with messages known as "tweets". Tweets were originally restricted to 140 characters, but on November 7, 2017, this limit was doubled to 280 for all languages except Chinese, Japanese, and Korean. Registered users can post, like, and retweet tweets, but unregistered users can only read them. Users access Twitter through its website interface, through Short Message Service (SMS) or its mobile-device application software ("app"). Twitter, Inc. is based in San Francisco, California, and has more than 25 offices around the world.

When?

- The Twitter account of the EARIV network was created last 2016 primarily for the events announcement of the European and regional projects under it other than sharing project updates, new scientific discoveries, job opening announcements, etc.

Where?

- As there are several projects under the umbrella of EARIV's network and its Twitter page can be accessed by several staffs from the network's different projects, the Institutions where it is being managed also varies depending on which EARIV project is the institution

associated with (ex : Grenoble, France (ESRF) & Trieste, Italy (National Council Research) for the NFFA.

Why?

- Perhaps what makes Twitter distinct from other Social Media platforms is that due to the limited number of character (only 140 characters maximum) you can put online that makes up the message you convey or your 'tweet' (similar to that of SMS), it is much easier to share real time updates using this platform. Moreover, Twitter was the one who first introduced the idea of putting hashtags before a keyword in a post so it would be easier to determine the trending topic of the day or even of the hour since it is based on real time. This scenario is very ideal for the events coverage of the projects under the EARIV network as its followers are updated from time to time of the day's events.

III. Comparative Analysis : The EARIV network and the projects CALIPSOplus & SINE2020

Illustrated below is a table of comparison between the EARIV network with two of the five projects under its wing : CALIPSOplus & SINE2020, regarding their Digital Marketing activities. For this comparison there are three factors to consider : (a) Website presence and overall organisation, (b) Social Media Accounts and lastly (c) Email Campaign.

	EARIV (European Analytical Research Infrastructures Village) Network	**CALIPSOplus** (Convenient Access to Light Sources Open to Innovation, Science and to the World) project	**NFFA** (Nanoscience Foundries & Fine Analysis) project
1. ***Website*** a. Presence b. Overall organisation (contents, regular events, updates, etc.)	 √ X	 √ √	 √ X

2. ***Social Media Accounts***			
a. Facebook	X	X	√
b. Youtube	X	X	√
c. Instagram	X	X	X
d. Twitter	√	X	X
e. Pinterest	X	X	X
f. Tumblr	X	X	X
g. Flickr	X	X	X
h. LinkedIn	√	X	√
3. ***Email Campaigns***	N/A	X	√

Figure 7 : Digital Marketing Activities Table of Comparison

CHAPTER 5 – THE NANOSCIENCE FOUNDRIES & FINE ANALYSIS (NFFA) PROJECT

This chapter will study further the NFFA project under EARIV network which was the main focus of the student's internship at the European Synchrotron Radiation Facility in Grenoble, France. The discussion on the website management of the NFFA will not be included in this study as its management is centralized and can only be accessed by the project's coordinator in Italy (Consiglio Nazionale delle Ricerche) and the project's software provider 'Promoscience'. For the discussion of its Digital Marketing activities, the 5W's method that we've seen from the previous chapter will be used once again and finally the student's latest task with regard to the NFFA project, its email campaign task will also be discussed at the end of the chapter.

I. ABOUT THE NFFA PROJECT

As briefly mentioned in the last chapter, the Nanoscience Foundries & Fine Analysis (NFFA) project sets up a transnational and a free of charge platform that can be accessed by both the academia and the industry. It offers interested institutions the widest range of tools for research at the nanoscale in Europe extending from synthesis to nanocharacterization to theory and numerical simulation.

A. Overview

Vis-a-vis with the industry which is the focus of this study, NFFA-Europe is a European One-Stop-Shop dedicated to industry. It sets out a a single entry point platform that provided industry with an easy and coordinated access to 20 partners across Europe, including large scale facilities, nanotech instruments and expertise, dedicated to industrial innovation at the nanoscale. The process for the NFFA access starts upon the submission of a project proposal, it will be then subject to a peer review made up of a team of international exparts to study the proposal's potential and to rank it. Once the proposal is approved, user projects can have now the free access to state- of-the art tools for multidisciplinary, frontier research at the nanoscale: available techniques range from nanocharacterization to theory and numerical simulation through the single portal of NFFA.EU. Users will communicate with a team of experts in the fields of their interest, building a personalized access programme. Furthermore, if a user project needs to go to one of the partner research facilities, visits will be available free of charge and NFFA Europe will also cover the travel and subsistence costs for users while accessing the identified installations. Partners offering transnational access are research laboratories of national or international research institutions staffed with professional scientists and technical personnel as well as post-doctoral fellows carrying out institutional research programmes at the forefront of science and with a high profile track record.

B. The Overall offer to Industry

Listed below are the three main offers of the NFFA project:

- Transnational Access Activities

Transnational Access Activities (TA) of the NFFA project to industry and academia that are performed at nano-laboratories and ALSFs, gives the opportunity to integrate theory and numerical analysis, structural and morphological characterization, electronic and chemical characterization, and magnetic, optical and electric characterization. It also gives the opportunity of accessing to state of-the-art nanolithography / nanofabrication installation and to one installation for growth of materials, by physical and chemical methods. The offer to interested clients are these mentioned different techniques through a free combined access. NFFA-EUROPE connects its partner research facilities through the single platform, each having their own expertise related to the nanoscience research in order for the user

projects to have a quicker and easier time on reaching them instead of being contacted individually.

* Transnational Access Statistics

The information below are the present over all statistics regarding the Transnational Access activities of the NFFA project.

- 13 calls for access

- 424 proposals submitted

- 65% rate of acceptance

- 32% with Large Scale Facilities

- 13% with theory

- 10% with industry

- ~3 - average users per proposal

- 51 countries applying

- 1270 lab sessions

Figure 8 : Transnational Access Activities of NFFA

- Joint Research Activities

Joint Research Activities (JRA) between partner research facilities with the academia or the industry are also organized and performed in order to develop methods and tools for the expansion of tools offer for future projects.

Five JRAs with common needs across the consortium have been identified. These concern experimental (methodological and instrumentation) and data management aspects. All of these activities impact directly on the feasibility of novel experiments and on the knowledge transfer through an innovative data management system. The JRAs are based on on-going developments by the Partners.

JRA1. <u>In-operando and high throughput methods</u>

Design and commissioning of advanced sample environments for in-operando experiments for nano-systems (observing-while-doing) and high-throughput methods of nano-analysis enabling efficient surveying of material science libraries.

JRA2. <u>High precision manufacturing</u>

Develop high precision manufacturing by advance of lithography and pattern transfer technologies towards the controlled and reproducible fabrication of sub-10 nm structures in surfaces over an area large enough to perform meaningful scientific experiments.

JRA3. e-Infrastructure for data and information management

Develop an integrated Information and Data management Repository Platform (IDRP) covering the full research cycle by the users.

JRA4. Time-resolved ultrafast probes on nanosystems

Pave the way towards systematic time-resolved experimental and theoretical analysis for nanoscale systems and prepare access to novel FEL and forthcoming X-ray FELs laboratories through fs-range pulsed radiation from table top UV and soft X-sources.

JRA5. Advanced Nano-object Transfer and Positioning

Enable reproducible sample positioning, with nanoscale precision, under different experimental probes from clean room to beamlines whilst fully preserving the conditions and properties of the nanostructures.

- Networking Activity

Networking Activity (NA) is designed and organized to foster an effective interface with the wide-ranging user communities, as well as continuously developing experimental data fit for industrial use for instance when trying to identify the best solution to a user request using all the possible tools in the NFFA platform. Networking activities improve the quality of the "one-stop shop" access provided by NFFA-Europe and maximise the impact on the various user communities. The primary resource of knowledge of the NFFA project comes from its Technical Liaison Network (TLNet) which is a team operating across the NFFA-Europe nodes, available on giving knowledge and technical support to users. Around this backbone operate the complementary networking activities of dissemination, training and mobility, industrial innovation, knowledge transfer and data management.

II. Social Media Accounts Management

For the NFFA project there are currently two Social Media platform exisiting for its Digital Marketing Activities: LinkedIn and Facebook.

A. LinkedIn

Who?

- Connecting with the different professionals such as scientists and engineers who are working for the NFFA project, a project partner whether it is an academic institution or an industry.

What?

- LinkedIn is an American business and employment-oriented service that operates via websites and mobile apps. Founded on December 28, 2002, and launched on May 5, 2003, it is mainly used for professional networking, including employers posting jobs and job seekers posting their CVs. As of 2015, most of the company's revenue came from selling access to information about its members to recruiters and sales professionals. Since December 2016 it has been a wholly owned subsidiary of Microsoft. Currently, LinkedIn had 630 million registered members in 200 countries as of June 2019.

When?

- The LinkedIn account of the the NFFA has been created last year of 2018 by the Marketing officers under the Business Development office of the ESRF which leads the innovation and networking activities of the project. The account as of the moment, can solely be accessed by the NFFA intern and her company supervisor.

Where?

- The LinkedIn account management of the NFFA project is currently being handled at the European Synchrotron Radiation Facility (ESRF) in the EPN (European Photon and Neutron) Science Campus of Grenoble's 'Scientific Polygon'.

Why?

- NFFA's LinkedIn account has been created not only to recruit potential talents who are fit for the needs of the project such as project engineers, interns, post-docs, etc. which is the primary purpose of the LinkedIn platform in the first place but also to be able to connect with the wider network of the project including its consortia and other industries and

academic institutions outside its circle regarding the latest project updates, new scientific discoveries, latest partnerships, project opportunities/ offer, etc.

B. Facebook

Who?

- The founders initially limited the website's membership to Harvard students and subsequently Columbia, Stanford, and Yale students. Membership was eventually expanded to the remaining Ivy League schools, MIT, and higher education institutions in the Boston area, then various other universities, and lastly high school students. Since 2006, anyone who claims to be at least 13 years old has been allowed to become a registered user of Facebook, though this may vary depending on local laws.

What?

- Facebook, Inc. is an American online social media and social networking service company based in Menlo Park, California. It was founded by Mark Zuckerberg, along with fellow Harvard College students and roommates Eduardo Saverin, Andrew McCollum, Dustin Moskovitz and Chris Hughes. It is considered one of the Big Four technology companies along with Amazon, Apple, and Google. The Facebook service can be accessed from devices with Internet connectivity, such as personal computers, tablets and smartphones. After registering, users can create a customized profile revealing information about themselves. They can post text, photos and multimedia which is shared with any other users that have agreed to be their "friend". Users can also use various embedded apps, join common-interest groups, and receive notifications of their friends' activities. Facebook claimed that had more than 2.3 billion monthly active users as of December 2018. Facebook offers other products and services. It acquired Instagram, WhatsApp, Oculus, and GrokStyle and independently developed Facebook Messenger, Facebook Watch, and Facebook Portal.

When?

- The Facebook account of the NFFA project was created last June 2017 by one of the former Marketing staff of the Business Development Office at the ESRF. As of the moment, it can be accessed by the intern, the company supervisor and the creater of the account despite the fact that he now works for another research facility.

Where?

- The Facebook account management of the NFFA project is currently being handled at the European Synchrotron Radiation Facility (ESRF) in the EPN (European Photon and Neutron) Science Campus of Grenoble's 'Scientific Polygon'.

Why?

- NFFA's Facebook account was created in order to reach out the general public as LinkedIn is only limited to professionals. By also targeting the general public through FB, the NFFA team could further strengthen its social media presence and in turn, the increased possibility to engage more with industry and academic institutions. Probably the main difference between Facebook and LinkedIn in this context is that in Facebook have the opportunity to promote the project to the people you know personally like family and friends who are not necessarily working in the same field or company as you by inviting them to like the NFFA page for instance.

III. EMAIL CAMPAIGN

The Email Campaign for industry proposed by the student for the NFFA project is yet to be executed at by the month of September. Thus, for the moment the report will be unable to discuss the results of the campaign and will be focusing instead on the campaign plan proposed.

A. Suggested NFFA Email Proposal

Dear Sir/ Madame,

NFFA-EUROPE is an open & free transnational platform for both the academia & industry granted by the EU to carry out comprehensive projects for multidisciplinary research at the nanoscale extending from synthesis to nano-characterization to theory and numerical simulation. Promoting the concept of a European 'One-Stop-Shop' for your R&D needs or product development, it integrates 20 highly reputable Partners half of which are nano-foundries co-located with Analytical Large Scale facilities dedicated to industrial innovation, all within your reach through a single entry point at the NFFA.EU portal.

Upon submitting your project proposal, it will be reviewed and ranked by a panel of international experts for its feasibility. Then it will be assigned to the to the most appropriate NFFA-Europe site/sites, guaranteeing free of charge

access to the most appropriate combination of methods and instruments. Moreover, a contribution is given for travel and subsistence expenditures.

With the rise of projects such as NanoPack, nanotechnology market is now growing bigger and more advanced making nanoscience and nanotechnology as priority fields for today's innovation leaders in different industries such as Energy, Chemicals and Pharma. We therefore consider that there can be advantageous opportunities for collaboration based on our experience in your sector.

Discover how you can benefit from this opportunity of FREE ACCESS & BEAMTIME for your advantage by clicking the link **https://www.nffa.eu/offer/**

In compliance with the GDPR policy on privacy by the European Union if you do not want to hear further from us please reply STOP on this email or if you want to keep in contact with us and benefit from this opportunity, kindly contact us here through email.

We are looking forward to hear from you! Thank you and we wish you a nice day.

Sincerely,

Lara Titan
Marketing Assistant for NFFA-Europe
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Connect with us! LinkedIn account: https://www.linkedin.com/company/nffa-europe

Facebook account: https://www.facebook.com/nffaeurope/

B. Target Audience

- Small and Medium Enterprises (SMEs)

These refers to the projects or start up business from different European consortiums which can be purely industrial in nature or mixed industrial and academic in nature (ex : Cupido project National Research Council of Italy (CNR), Charité University Medicine Berlin and several companies such as Sanofi and SMEs such as the Italian based PlumeStars s.r.l. which is a start-up specializing in drug delivery to lung for the treatment of respiratory diseases). They come from different areas or fields from micro/nano electronic start-up companies to associations formed for preservation of heritage sites.

- Corporations/ Companies

As mentioned earlier on this research paper, the industries covered by the NFFA project are the following : Nano Electronics, Chemicals, Energy, Nano Materials, Pharma and Nano

Biology and from these industries the NFFA team base what corporations or companies to look for as potential clients. The email campaign of the NFFA project also targets corporations/ companies that are coming from the mentioned industries as they are likely to request for confidential (not for publication) and rapid but paid for access option of the NFFA project which brings additional fundings for the NFFA project.

C. Expected Impact

The following are the expected impact of the NFFA project email campaign which are classified into short-term and long-term impact.

(1) Short term :

- The single entry platform of NFFA will receive more project user requests or at least inquiries for the meantime from both SMEs and corporates as it was recently promoted through Email campaign.

(2) Long term :

- Financial profit is not the top priority for the NFFA project. The overall aim is to be able to encourage enterprises in Europe from small to large companies to exploit the technology available at the advanced research infastructures from all over Europe for their product development needs or their R & D needs. Moreover, by putting the link of social media accounts at the bottom of the email it ensures that companies who 'liked' or followed the corresponding pages will be always updated to the project.

- More consortiums will be formed between academic institutions, inudstries and SMEs since more than the offer, another purpose of the Email campaign is networking purpose or to find business contacts.

- The campaign serves also as a promotion of the research facilities in Europe which makes up the team of the NFFA Europe project.

PART 3
-
WHAT'S NEXT FOR THE EUROPEAN UNION? : RECOMMENDATIONS FOR HORIZON EUROPE BASED ON THE UPCOMING TRENDS IN THE DIGITAL MARKETING WORLD

CHAPTER 6 – TREND AS A SOCIETAL INTEREST

This chapter will take a look on the definition and role of a trend in our society today before jumping to the discussion about trends in the context of digital marketing on the next chapter.

I. WHAT IS A TREND ?

A trend is a general direction into which something is changing, developing, or veering toward. The term may also mean a fashion or craze, i.e., a fad. The verb 'to trend' means to develop or change in a general direction.

II. Trend vs. Fad

A trend gets stronger over time and does stick around. Trends have identifiable and explainable rises that are driven by audience needs. Some worth mentioning 'trends' from the past includes the fringed flapper evening dress of the 1920's in the world of fashion and the popularity of mobile phones and SMS messaging in the 2000s in communications. In the world of social media for example, if something trends it is the topic of many posts like what we can see in the case of Twitter where the hottest topics are called as 'trending' topics and are always updated in the Twitter homepage in real time. The average duration of a trend can be anywhere from a year to 10 years.

A fad, on the other hand, is any form of behavior that is intensely followed by a population for a short period of time usually up to a year or two at the most. The behavior will rise relatively quickly and fall relatively quickly once the perception of novelty is gone. Examples of recents fads were the Ice bucket challenge which was a hit during the summers of 2016 in order to raise awareness of the disease amyotrophic lateral sclerosis (ALS) to the public and the augmented reality mobile game 'Pokemon-Go' which was very popular from 2016-2017 worldwide.

For the purpose of this study, probably the best way to be updated with the trends in the Digital Marketing world is to be open to change as the cyber world is always fast paced and to be also open to learning new things everyday like staying updated in the current events in our society, knowing about the latest technology, etc. The following chapter will address

some of the newest online platforms or and online tools which can be used by digital marketers regardless of what type of enterprise or company they are working for.

CHAPTER 7 – Talk of the Town : Current and Upcoming trends in the Digital Marketing World

After discussing what is a trend and what is the role it plays in our society, the last chapter of this internship report will be devoted to the discussion on current and upcoming trends in the Digital world today which will serve as one of the basis for recommendations to the Digital Marketing activities of Horizon program funded projects.

I. Web design and Development platforms

Nowadays there is a lot of websites in the internet that offer both free and paid for web developing and graphic designing services. One of the goals of this chapter is to research for new web developing and graphic designing sites that can be alternative options for users.

A. Squarespace

According to the website 'thebest10websitebuilders.com', Squarespace is voted as the top 3 best website builder for 2019 and has an 'Excellent' rating with WIX (currently being used by the EARIV network as mentioned earlier on this study) on the top spot having an 'Outstanding' rating. Squarespace offers an all in one platform to its user be it a simple start-up or a company with already an established brand. It offers a free trial for first time users and reasonably priced plans if a user wishes to continue using the site. With their award-winning and state of the art templates, Squarespace gives its clients the opportunity to beautifully present their ideas online by providing outstanding professional website, portfolio, or online store.

B. Canva

Originally marketed as a photo editor website, Canva offers hundreds of free design elements and other services to its users such as color palette generator, font selection tool, photo collage assembler, and infographic maker with its easy to use drag and drop format. Moreover compared to other similar sites it is interesting to mention that it provides online educational resources.

C. SITE123

With a 'Very good' rating according to the website 'thebest10websitebuilders.com', what makes SITE123 a unique website builder on its own is that it provides a customized design assistance aside from the option of using a pre-designed templates which is often the case for other website builder sites. It claims that it is so far the easiest free website builder as it only has 3 easy steps a user must follow in creating a website hence its name 'SITE123'.

II. Social Media platforms

As we've seen from the earlier chapters of this study, European R&I projects under the Horizon 2020 do not use all of the Social Media platforms available in the internet due to various reasons such as lack of manpower to manage all the accounts or maybe having a Facebook account for instance is deemed not necessary by the administration of some projects as long as they have LinkedIn account which is used more often for professional networking than Facebook. Nevertheless, based on what's trending in today's digital world, the student proposes the following social media platforms which are currently talk of the town or at least are believed to have a very big potential.

A. Instagram

Probably the social media platform that the student recommends after LinkedIn, Twitter and Facebook, Instagram is a photo and video-sharing social networking service owned by Facebook, Inc. It is a simple, fun & creative way to capture, edit & share photos, videos & messages not only with friends & family but also for the European projects' benefit, to its professional network. It is worth mentioning that other publicly funded research institutes in Europe like ALBA Synchrotron Radiation facility in Spain and DESY (Deutsches Elektronen-Synchrotron), a German synchrotron research center have already accounts in Instagram in addition to their Twitter and Facebook accounts in support to their communication and dissemination activities.

B. Vero

According to the writer for 'Marketo' (an Adobe company) Mark Whitehurst, Vero is the main contender of Instagram when it comes to digital media sharing. Same as Instagram this app allows for easy sharing of movies, TV, music, books, places, photos, and links. However unlike Instagram, Vero has a 'Collection' section where one can divide his posts into photos/videos, links, music, movies/tv, books, and places in his own account for better

profile organisation. Another difference from that of Instagram is that it has only content and no advertisements which gives the user the opportunity to research on his own over the app when looking for inspirations for the next marketing campaign.

C. Reddit

On the website Wikipedia, Reddit with the motto 'the frontpage of the internet', is an American social news aggregation, web content rating, and discussion website. Registered members submit content to the site such as links, text posts, and images, which are then voted up or down by other members. It is another social media platform where R&I projects under the present and future Horizon framework programmes could raise discussion threads regarding a topic of their interest. For instance, on the study about Nanosafety where the NFFA is presently involved since this study is very new and there are still many unknown facts about Nano particles and Nanoscience in general it might be interesting for its project team to have a discussion post about this topic open to the public in the Reddit platform which could potentially contribute on the further development of the said study.

III. Analysis Tools

In order to help digital marketers on which Social Media platform to use as part of their Marketing campaign different analysis tools are often used in order for them to understand what topics or issues are trending nowadays in our society. This sub-chapter will discuss three types of analysis tools, all of which were voted to be on the top 5 to 10 last year 2018 or this year of 2019 according to the student's internet research.

A. For Social Network Analysis : Sproutsocial

Sproutsocial analytics tool according to the editors of PCmag, a renowned American computer magazine is ranked the best social media analytics tool for the year 2019. With its free trial for first time users it is best suited for enterprises and small to medium businesses. It measures and enhances the social business strategy of a company using its social media analytics tool. Sproutsocial tracks performance & trends and discover what resonates with the concerned target audience, customers or clients.

B. Hashtag Analysis : Keyhole

This is a simple and easy-to-use hashtag analytics tool that you can use to track any hashtag or keyword in real time. Hashtag analysis is very important for digital marketers

because it helps them to determine what is 'trending' topic in a given period of time which in turn could help with their marketing campaigns. American blogger Shane Barker states that apart from Keyhole's feature of providing hashtag performance metrics, it can also help digital marketers to find influencers that are talking about a particular hashtag and it also has a word cloud feature that shows all hashtags related to the hashtag a marketer has typed in the search bar.

C. Influencer Analysis : Upfluence

For the year 2019 Upfluence wins the top spot as the best influencer marketing platform that helps digital marketers discover influencers on various platforms. Using this platform one can look for relevant influencers on various Social Media accounts like Facebook, Instagram, Twitter, YouTube and blogs. Upfluence has an extensive database of influencers from 150 countries which are screened for high-quality engagement and reach according to the American blogger Shane Barker. When using Upfluence, a user can filter results when searching for an influencer based on their geolocation, engagement rates, statistics, and other parameters. Its software also enables the user to to send bulk emails, streamline the campaigns of his influencer and get real-time updates.

CONCLUSION

The process of Knowledge Valorisation from research to academia or to industry in support of their R&D activities is at the very backbone of the European Union's policies as this is an important contributor to the region's competitive advantage and more importantly, to its economic growth and provides job opportunities. In order to promote the Horizon 2020 funded projects, the Publicly Funded Research Institutes who manage them recognize the essential role of Digital Marketing as an effective communication tool in order to reach target audience, hence various efforts like Website and Social Media accounts are created. The Digital world being a very fast paced environment has always something new to offer to digital marketers to use and to discover. In order to succeed on this field one should be adaptable to change. As we have seen on this study, there is a general guide from the European Commission on how European research and innovation projects should manage their Digital marketing activities particularly on the Social Media management and choosing which digital communication would be best for their project but since following the whole

EC guide is not obligatory and each projects have different purpose and interest the researcher conclude that there is no single result and it varies from case to case.

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ABBREVIATIONS AND ACRONYMS USED

ESRF *: European Synchrotron Radiation Facility*

EARIV *: European Analytical Research Infrastructures Village*

NFFA *: Nanoscience Foundries & Fine Analysis*

CALIPSOplus *: Convenient Access to Light Sources Open to Innovation, Science and to the World*

SINE2020 *: Science & Innovation with Neutrons in Europe in 2020*

EU *: European Union*

EC *: European Commission*

R&D *: Research and Design*

PFRI *: Publicly Funded Research Institute*

ARI *: Advanced Research Infrastructures*

IP *: Intellectual Property*

SME *: Small and Medium Enterprise*

CNR *: Consiglio Nazionale delle Ricerche*

DESY *: Deutsches Elektronen-Synchrotron*

EIT : *European Institute of Innovation and Technology*

COPD *: Chronic Obstructive Pulmonary Disorder*

PMDI *: Pressurised Metered Dose Inhalers*

DPI *: Dry Powder Inhalers*

APSD *: Aerodynamic Particle Size Distribution*

EUCALL *: European Cluster of Advanced Laser Light Sources*

JRA *: Joint Research Activities*

IDRP *: Information and Data management Repository Platform*

NA *: Networking Activity*

TLNet *: Technical Liaison Network*

GLOSSARY

BRIDGING : THIS INVOLVES THE ACT OF BUILDING FOUNDATION OR NETWORK WITH OTHER PARTIES THAT COULD BE BENEFICIAL FOR YOUR INSTITUTION

DISSEMINATION : THE ACTION OR FACT OF SPREADING SOMETHING, ESPECIALLY INFORMATION, WIDELY.

Handle (**@**): Unique user name mainly used to identify a person or a project's account.

Hashtag (#) : Added in front of any word or phrase in a post, this makes it easier for users to locate specific content or themes.

Influencer : An influencer is an individual who has the power to affect purchase decisions of others because of his/her authority, knowledge, position or relationship with his/her audience.

Knowledge Valorisation : Refers to the utilisation of scientific knowledge in practice.

Single Market : The single market refers to the EU as one territory without any internal borders or other regulatory obstacles to the free movement of goods and services.

Fad : Any form of behavior that is intensely followed by a population for a short period of time.

Trend : A trend is a general direction into which something is changing, developing, or veering toward

Trending : Refers to the most talked issue or topic in the social media in a given time period.

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APPENDICE 1 : FACTSHEET: SMES IN HORIZON 2020

SMALL- AND MEDIUM-SIZED ENTERPRISES (SMES) ARE ENCOURAGED TO PARTICIPATE ACROSS HORIZON 2020. THEY CAN PARTICIPATE IN COLLABORATIVE PROJECTS AS PART OF A CONSORTIUM AND BENEFIT FROM SUPPORT VIA A DEDICATED SME INSTRUMENT, DESIGNED SPECIFICALLY FOR HIGHLY INNOVATIVE SMALLER COMPANIES.

HORIZON 2020'S INTEGRATED DESIGN AND SPECIFIC FEATURES SUPPORTING SIMPLIFICATION SHOULD LEAD TO A MINIMUM OF 20%, OR ABOUT € 8.33 BILLION, OF THE TOTAL COMBINED BUDGETS OF THE SPECIFIC OBJECTIVE 'LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES' (LEITS) AND THE 'SOCIETAL CHALLENGES' GOING TO SMES. THE SME INSTRUMENT WILL BE CRUCIAL IN ACHIEVING THIS TARGET. OVER THE COURSE OF HORIZON 2020, AROUND € 3 BILLION WILL BE ALLOCATED TO THE SME INSTRUMENT

1. THE SME INSTRUMENT

THE NEW INSTRUMENT AIMS TO FILL GAPS IN FUNDING FOR HIGH-RISK MATURE RESEARCH BY SMES AS WELL AS TO STIMULATE BREAKTHROUGH INNOVATION. IT PROVIDES EASY ACCESS WITH SIMPLE RULES AND PROCEDURES. IT IS USED ACROSS ALL HORIZON 2020 SOCIETAL CHALLENGES AND THE ENABLING AND INDUSTRIAL TECHNOLOGIES SPECIFIC OBJECTIVE. IT ENCOURAGES SMES TO PUT FORWARD THEIR MOST INNOVATIVE IDEAS WITH AN EU DIMENSION. IT TARGETS HIGHLY INNOVATIVE SMES SHOWING A STRONG AMBITION TO DEVELOP, GROW AND INTERNATIONALISE, REGARDLESS OF WHETHER THEY ARE HIGH-TECH AND RESEARCH-DRIVEN OR NON-RESEARCH CONDUCTING, SOCIAL OR SERVICE COMPANIES.

ONLY SMES ARE ABLE TO APPLY FOR FUNDING. EVEN A SINGLE COMPANY CAN APPLY AND RECEIVE SUPPORT, HELPING MARKET RELEVANCE AND GO-TO-MARKET PROSPECTS OF PROJECT RESULTS. THE COMPANIES THEMSELVES CAN DECIDE HOW BEST TO ORGANISE THEIR RESPECTIVE PROJECTS AND CHOOSE WITH WHOM TO COLLABORATE, INCLUDING WITH SUBCONTRACTORS IF THEY LACK IN-HOUSE CAPABILITIES.

HOW IT WORKS

SUPPORT IS PROVIDED IN THREE DIFFERENT PHASES COVERING THE INNOVATION CYCLE.

PHASE 1: A FEASIBILITY PART ALLOWS FOR AN ASSESSMENT OF THE TECHNOLOGICAL AND COMMERCIAL POTENTIAL OF A PROJECT (PROOF OF CONCEPT). FUNDING IS PROVIDED IN THE FORM OF A LUMP SUM.

PHASE 2: A MAIN GRANT WILL SUPPORT AN INNOVATION PROJECT FOCUSING ON ACTIVITIES SUCH AS DEMONSTRATION, TESTING, PROTOTYPING, PILOT LINES, SCALE-UP STUDIES, MINIATURISATION, DESIGN, PERFORMANCE VERIFICATION ETC. AND MARKET REPLICATION.

PHASE 3: THE COMMERCIALISATION PHASE IS SUPPORTED INDIRECTLY THROUGH THE ORGANISATION OF MARKET-DRIVEN NETWORKING AND TRAINING ACTIVITIES, SUPPORTING ACCESS TO FINANCE AND ACCESS TO CUSTOMERS. THE SUPPORT PROVIDED UNDER PHASE 3 IS OFFERED IN PARALLEL TO SMES THAT ALREADY RECEIVE SUPPORT UNDER PHASE 1 OR 2.

IN ADDITION, A COACHING AND MENTORING SCHEME IS OPEN EXCLUSIVELY TO BENEFICIARIES OF THE INSTRUMENT IN ORDER TO ACCELERATE THE IMPACT FROM THE FUNDING PROVIDED, THUS EQUIPPING THE COMPANY WITH THE SKILLS AND CAPACITIES FOR INNOVATION-DRIVEN GROWTH. THE SERVICE IS PROVIDED BY SPECIALLY-RECRUITED BUSINESS PRACTITIONERS AND WILL BE ACCESSIBLE THROUGH THE ENTERPRISE EUROPE NETWORK.

APPENDICE 2 : FACTSHEET ON INDUSTRIAL PARTICIPATION

23 OCTOBER 2013

FACTSHEET ON INDUSTRIAL PARTICIPATION

HORIZON 2020 IS DESIGNED TO BRING BUSINESS INTO THE RESEARCH AND INNOVATION CHAIN THROUGHOUT
ITS VARIOUS COMPONENTS. SOME OF THE KEY OPPORTUNITIES FOR PARTICIPATION AND SUPPORT ARE HIGHLIGHTED HERE.

PRIORITY OBJECTIVE: INDUSTRIAL LEADERSHIP

ONE OF THE THREE OBJECTIVES UNDER HORIZON 2020, 'INDUSTRIAL LEADERSHIP AND COMPETITIVE FRAMEWORKS' HAS A BUDGET OF € 17.01 BILLION IT AIMS TO MAKE EUROPE A MORE ATTRACTIVE LOCATION FOR
BUSINESSES, LARGE AND SMALL, TO INVEST AND SET THE RESEARCH AND INNOVATION AGENDA. THREE KEY ELEMENTS WILL SUPPORT THIS GOAL:

LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES: WILL SUPPORT THE DEVELOPMENT OF TECHNOLOGIES UNDERPINNING INNOVATION ACROSS A RANGE OF SECTORS, INCLUDING ICT AND SPACE.

HORIZON 2020 WILL HAVE A STRONG FOCUS ON DEVELOPING EUROPEAN INDUSTRIAL CAPABILITIES IN KEY ENABLING TECHNOLOGIES (KETS) WITH A BUDGET OF €5.96 BILLION. THESE INCLUDE:

- MICRO- AND NANO-ELECTRONICS; PHOTONICS
- NANOTECHNOLOGIES
- ADVANCED MATERIALS
- BIOTECHNOLOGY
- ADVANCED MANUFACTURING AND PROCESSING

DEVELOPMENT OF THESE TECHNOLOGIES REQUIRES A MULTI-DISCIPLINARY, KNOWLEDGE AND CAPITALINTENSIVE
APPROACH.

FAST TRACK TO INNOVATION PILOT ACTION (FTI): WILL BE IMPLEMENTED IN THE FORM OF A FULL SCALE PILOT
ACTION TO BE LAUNCHED IN AN FTI CALL IN 2015. 100 PROPOSALS ARE FORESEEN TO BE FUNDED UNDER THE
NEW PILOT ACTION. IT WILL SUPPORT INNOVATION ACTIONS UNDER THE SPECIFIC OBJECTIVE "LEADERSHIP ENABLING AND INDUSTRIAL TECHNOLOGIES" AND UNDER THE SOCIETAL CHALLENGES, RELATING TO ANY TECHNOLOGY FIELD, ON THE BASIS OF A CONTINUOUSLY OPEN CALL, AND TIME TO GRANT NOT EXCEEDING SIX
MONTHS. PROPOSALS MAY BE SUBMITTED AT ANY TIME. THE COMMISSION SHALL INITIATE THREE CUT-OFF DATES PER YEAR TO EVALUATE PROPOSALS. ANY LEGAL ENTITY MAY APPLY, WITH A MINIMUM OF 3 UP TO A MAXIMUM OF 5 IN ANY ACTION.

ACCESS TO RISK FINANCE. UNDER HORIZON 2020, A TOTAL AMOUNT OF € 2.84 BILLION IS BUDGETED FOR FINANCIAL INSTRUMENT FACILITIES, AND ACCOMPANYING MEASURES, FOR RESEARCH AND INNOVATION. AT LEAST ONE-THIRD OF THIS AMOUNT IS EXPECTED TO BE ABSORBED BY SMES AND SMALL MID-CAPS. A LEVERAGE OF UP TO 5 IS ENVISAGED, MEANING THAT FOR EVERY EURO PROVIDED THROUGH THE FINANCIAL INSTRUMENTS, ADDITIONAL FINANCE OF UP TO 5 EURO WILL BE GENERATED.

APPENDICE 3 : EU RESEARCH AND INNOVATION SUCCESS STORIES

THANKS TO EU FUNDING, WE GOT INCREDIBLE RESULTS ON:

CANCER TREATMENT

WHAT AMOUNT OF CHEMOTHERAPY IS NEEDED?

IN DEVELOPED COUNTRIES, A WOMAN'S CHANCE OF GETTING BREAST CANCER IS AROUND ONE-IN-EIGHT. CHEMOTHERAPY IS EFFECTIVE BUT CAN HAVE SERIOUS SIDE EFFECTS AND UP TO ONE-IN-FIVE EARLY BREAST CANCER PATIENTS COULD BE RECEIVING TOO MUCH CHEMOTHERAPY. EU-FUNDED RESEARCH HAS SHOWN THAT COMBINING TRADITIONAL METHODS FOR ASSESSING A TUMOUR'S AGGRESSIVENESS WITH A NEW LABORATORY TEST HELPS SET THE AMOUNT OF CHEMOTHERAPY NEEDED.

SOLAR JET FUEL

RESEARCHERS HAVE PRODUCED 'SOLAR' JET FUEL FROM WATER AND CARBON DIOXIDE

EU-FUNDED RESEARCHERS HAVE SUCCESSFULLY DEMONSTRATED THE ENTIRE PRODUCTION CHAIN FOR RENEWABLE

KEROSENE USING SOLAR ENERGY. CONCENTRATED SUNLIGHT IS USED TO TRIGGER A REACTION BETWEEN CO2

EXTRACTED FROM AIR WITH WATER TO PRODUCE AVIONICS GRADE JET FUEL. THE TECHNOLOGY HAS THE POTENTIAL TO PROVIDE SECURE, SUSTAINABLE AND SCALABLE SUPPLIES OF JET FUEL AS WELL AS DIESEL AND GASOLINE, AND EVEN PLASTICS.

ROBOT CARE

EU-FUNDED ROBOTS ARE HELPING THE YOUNG AND THE OLD

CANCER CAN BE PARTICULARLY DISTRESSING FOR YOUNG CHILDREN AND SO EU-FUNDED SCIENTISTS HAVE CREATED A ROBOT NICKNAMED 'LITTLE CASPER'. CURRENTLY BEING TESTED IN A HOSPITAL IN LISBON, CASPER WANDERS AROUND BOOSTING THE MORALE OF YOUNG CANCER PATIENTS. THERE IS ROBOT HELP FOR THE ELDERLY TOO. ANOTHER EU-FUNDED TEAM IS DEVELOPING RELIABLE PEOPLE-FRIENDLY ROBOT ASSISTANTS TO HELP THE ELDERLY DEAL WITH EVERYDAY DOMESTIC TASKS.

NEVER ENDING BATTERY

EU FUNDING MADE POSSIBLE THE DEVELOPMENT OF A SUPER BATTERY

EU FUNDING HAS HELPED AN ESTONIAN COMPANY PRODUCE AN ENERGY STORAGE DEVICE CALLED ULTRACAPACITOR, WHICH IS A HUNDRED TIMES MORE POWERFUL THAN AN ORDINARY BATTERY, AND CAN WITHSTAND ONE MILLION RECHARGE CYCLES. SKELETON'S ULTRACAPACITORS ARE BASED ON GRAPHENE – A TWO DIMENSIONAL FORM OF CARBON WITH REMARKABLE PROPERTIES. THE COMPANY HAS RAISED €13 MILLION TO BUILD A MANUFACTURING FACILITY IN GERMANY CAPABLE OF PRODUCING MILLIONS OF THESE NEW ULTRACAPACITORS A YEAR.

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