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Web-based Knowledge Management Manual

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DEC	Websites, patent fillings, videos, etc.	
OTHER		
ETHICS	Ethics requirements	
ORDP	Open Research Data Pilot	

Dissemination Level

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CO	Confidential, only for Members of the Consortium (including the EU Commission Services)	

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Contents

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Glossary, abbreviations and acronyms

EU	The European Commission or in general Europe
INEA	Innovation and Networks Executive Agency of European Commission
PO	Project Officer assigned by INEA to GASVESSEL Project
Partner	Company member of the GASVESSEL Project Consortium
Project	The GASVESSEL no. 723030 Project
CNG	Compressed Natural Gas
GA	Grant Agreement
CA	Consortium Agreement
KM	Knowledge Management
PMS	Project Management System
PM	Project Management
TM	Team Management
PA	Project Administration
P&C	Planning and Controls
PR	Project Reporting
DC	Document Control
HSEQ	Health, Safety, Environment and Quality controls and assurance
PRM	Procurement Management
MM	Materials Management
WP	Work Package
EPQ	Extended Project Qualification
LMS	Learning Management System
NP	Navalprogetti Srl – Trieste – Italy – The Coordinator – Partner -Lead Beneficiary of WP1 and WP5
DOW	Dow Deutschland Anlaghengesellschaft mbH - Partner
DOWA	DowAksa Deutschland GMBH - Partner
PNO	PNO INNOVATION – Belgium – Partner – Lead Beneficiary WP9
VTG	VNIPITTRANSGAZ – Kyiv – Ukraine – Partner – Lead Beneficiary WP6
SINTEF	SINTEF OCEAN AS – Trondheim – Norway – Partner – Lead Beneficiary WP7
BMP	BM Plus Srl – Buttrio – Italy – Partner – Lead Beneficiary WP4
CNGV	CNGV d.o.o. – Izola – Slovenia – Partner – Lead Beneficiary WP3
CEN	CENERGY Srl – Trieste – Italy - Partner
HLL	Hanseatic Lloyd Schiffahrt GMBH & Co – Bremen – Germany - Partner
CHC	Cyprus Hydrocarbon Company – Nicosia – Cyprus – Partner – Lead Beneficiary of WP2
EST	ESTECO S.p.A. – Trieste – Italy - Partner
ABS	American Bureau of Shipping (Hellenic) – Athens – Greece – Partner – Lead Beneficiary WP8
O&G	Oil and Gas
WP1	Project Management
WP2	Scenario analyses
WP3	Prototyping activities, design of pressure cylinders and prototyping pilot line
WP4	Prototyping of pressure cylinders. Procurement/construction/arrangement of prototyping pilot line
WP5	Ship Design
WP6	Offshore & Onshore gas loading/unloading systems

WP7	Costs and Benefits Analysis
WP8	Class Design Review – Safety Assessments
WP9	Dissemination and Exploitation
QA	Quality Assurance
QC	Quality Control
CBA	Costs Benefits Analysis
Work Plan	Planning of Activities in Attachment 1 of Project Management Plan D1.2
WBS	Work Breakdown Structure
DMS	Document Management System
SME	Small Medium Enterprise

1. Introduction

1.1 Executive Summary

Knowledge management can improve business performance and business capacity.

Traditional knowledge management methodologies are usually too formal, complicated, time-consuming and expensive.

Web based solutions, like social networks used for communication, collaboration and knowledge sharing within or between companies offer competitive advantages, especially to SMEs, in the form of increased innovation, productivity, agility and cost reduction.

1.2 Purpose and Scope

This Manual explains how to manage multimedia content and how to adopt traditional knowledge management techniques into a multimedia environment context.

1.3 About the Knowledge Management

Data, information and knowledge are distinct entities. The three are intrinsically depending from each other and knowledge cannot exist without data and information.

Data are often defined as raw facts such as a catalogue of numbers and letters. Giving a context to the data will create an information. Combining information with an individual's existing beliefs, skills and perception will create knowledge.

There are many definitions of Knowledge Management (KM):

- KM is "a concept in which an enterprise gathers, organizes, shares and analyzes the knowledge of individuals and groups across the Organisation in ways that directly affect performance "(Seiner, 2001).
- KM is the process through which organizations generate value from their intellectual and knowledge-based assets "(Levinson, 2007).
- KM involves the identification and analysis of available and required knowledge assets and processes… so as to fulfill organizational objectives "(Sveiby, 1996).
- KM is "simply the transfer of knowledge from one person to another, the result of which enables the recipient to benefit from the collected wisdom of the more experienced members of an Organisation or group" (Villegas, 2000).
- KM is "a cyclical system that enables an Organisation to efficiently achieve its objectives by having the ability to transform tacit and explicit learnings into habits, better planning and execution" (Estacio, 2006).

The development of the internet and its maturity over the last years, the number of people that have easy access to internet and the evolution of the software sector have resulted in a set of activities and processes designed to identify, capture, create, use and share explicit and tacit knowledge within the Organizations, using web tools and other tools related to the new information and communication technologies.

2. Gasvessel Project on the web and Social Media

Before entering in detail in the web-based KM and KM Manual, object of this Deliverable, it is useful to have at first an overall view on GASVESSEL website to understand the vastity and complexity of the Project and how web-based KM is beneficial to it when correctly applied.

The GASVESSEL website represents the main online public communication tool. The purpose is to share the public information regarding the project with all the stakeholders and interested audiences across Europe. The website was released before month 3 (Sept 2017), as agreed in the Grant Agreement.

2.1 Domain

This website's domain is: www.gasvessel.eu
GASVESSEL's digital private area is available at: https://www.innovationplace.eu/project/890

2.2 Hosting

The website was registered on: May 24th, 2017
The website is hosted at: Innovation Engineering Srl

2.3 Website data

The website data is collected through Google analytics.

2.4 GASVESSEL e-mail

The website's e-mail is: info@gasvessel.eu
The website's e-mail is hosted through: http://webmail.gasvessel.eu/
The website's e-mail is forwarded to: gasvessel@navalprogetti.net

2.5 Private area

As mentioned before, the GASVESSEL website also contains a private (restricted) area that is available on a subpage of Innovation Place (https://www.innovationplace.eu/). Innovation Place can be accessed through the login button situated in the website's top menu bar. This area is only accessible for partners of the GASVESSEL consortium. Once the partners registered, PNO gave them access to this restricted area via a unique user name and password.
This private area helps to keep the files confidential and stored in one location. Innovation Place also provides basic information on the project: starting date, official full name, project duration.

2.6 Connected external services

GASVESSEL website is constantly monitored and supported with the help of various external tools that serve GASVESSEL's communication ambitions. Except for the private area, the site is connected to a Mailchimp mailing tool through a newsletter subscription plugin, which automatically saves newsletter subscribers to the Mailchimp database.
Website's footer links to project's LinkedIn and Twitter accounts.

2.7 Search engine optimization

As one of the website's main objectives is to update stakeholders about project results and progress, it is important that the website can be found in the top search results of search engines (such as Google or Bing). To make sure the website appears on the top for relevant search queries, the following efforts have been made and shall be maintained in the future.

CMS

The website is based on the WordPress content management system (CMS). For the chosen CMS the search engine optimizations (SEO) are performed automatically by a dedicated *YOAST SEO* plugin, which helps ensure good SEO ranking through feedback and relevant adjustments.

Backlinking

In order to be ranked higher (appear in the top search results), websites need a backlink profile. This means that GASVESSEL website should be linked from (relevant) websites; such websites are websites of the partners, industry relevant sites, online magazines, etc.

During the first consortium meeting, all partners have been asked to link back to the GASVESSEL website from each of their organisations individual websites. Besides, there are links from the social media profiles (LinkedIn and Twitter) to the GASVESSEL website, which also contribute to a better SEO.

Internal links

Besides being linked to from other websites, it is important that the website has a profile of outgoing links as well – links from the GASVESSEL site. Currently the GASSVESSEL website links to 37 external websites, including the websites of the partners.

To further diversify the link portfolio and to increase the awareness of the project, plans are made to link to the website of the European commission.

Content

Another important part of SEO is updating content on the website. For this reason, GASVESSEL has a very prominent news and events section on the website. This section is updated by GASVESSEL partner – PNO – with relevant project results, industry news, and notifications of upcoming events and conferences. During the consortium meeting, partners have been asked to provide PNO with relevant news and events, to stimulate new content generation/creation.

3. Gasvessel website content

The website was developed in a style agreed by the GASVESSEL consortium. This style includes the GASVESSEL logo, together with the *house style* colors: green RGB (76, 173, 68) and blue RGB (21, 75, 122).

Since the website makes use of the house style colors in the header (top part of the site), the logo would not be visible. It was, therefore, chosen to make the logo fully white, which gives the website cleaner and more consistent appearance.

To assure awareness and accessibility of the project website, it is crucial to add all the relevant information. Since the GASSVESSEL project is rather considerable, a one-page-site format would not suffice the set-out communication goals. Therefore, the information is distributed over the featured website pages; these pages are:

- Home (www.gasvessel.eu/)
- About (www.gasvessel.eu/about/)
- Consortium (www.gasvessel.eu/consortium/)
- Downloads (www.gasvessel.eu/downloads/)
- News / events (www.gasvessel.eu/news/)
- Contact (www.gasvessel.eu/contact/)

3.1 Homepage

The homepage encompasses links to six subpages that contain the most important content of the website. These links can be found in the top menu (that is replicated on every page) together with the (restricted area) login in the top menu, as well as in the footer of the website.

One can click on the logo to access the homepage from any other page of the website.

Part of the site where the top menu resides, contains a banner that displays a drawing of a vessel. The banner also contains a headline encouraging visitors to learn more about the project.

In the second section of homepage contains a short project description and video telling more about GASVESSEL. This section is visible without scrolling through the page, to ensure instant exposure to the website visitor, fostering further exploration of the project site.

The third section contains a GASVESSEL newsletter subscription module that is automatically synchronized with the Mailchimp platform. Right below this module, there is a prominent news section that contains both relevant news and events.

The last two sections of homepage (above the footer) contain partner logos and acknowledgements of the EU grant receival. This partner section has the aim to present the organisations involved in the GASVESSEL project. Hopefully, the website visitors are encouraged to get in touch or to follow the project on one of its channels.

The complete homepage impression can be found in figure below.

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3.2 About page

The **About** page of the GASVESSEL contains a detailed description of the project, its objectives and the expected impact. On the right-hand side, there is an embedded vertical news and events feed. This feed is meant to trigger visitors to discover more about the GASSVESSEL, but at the same time to provide latest GASVESSEL – 723030 Compressed Natural Gas Transport System highlights from a quick glance over the page. For this reason, the vertical news feed was added to all the website pages apart from Home and News page itself. The *About* page impression can be found here below.

The general description of the project

This section rather extensively covers the GASVESSEL concept and project's intentions; the section mentions three routes within Europe that GASVESSEL project plans to open.

The project objectives

The objectives section includes a detailed description of GASVESSELS's objectives.

Impact

The third page section contains a description of the expected impacts of the project.

GASVESSEL

about consortium downloads news contact

search | login

COMPRESSED NATURAL GAS TRANSPORT SYSTEM

learn more
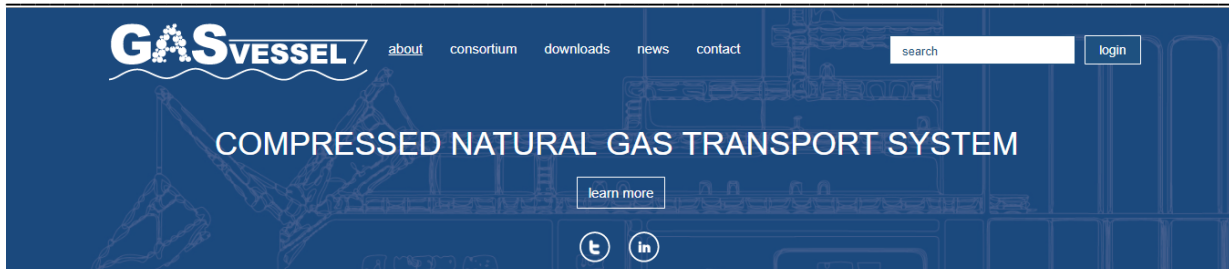
About

The GASVESSEL Project

Key to securing Europe's energy supply is diversifying supply routes. This includes identifying and building new routes that unlock resources and decrease Europe's dependence on a single supplier of natural gas and other energy resources. The GASVESSEL project opens up new possibilities to exploit stranded, associated and flared gas where this is currently economically not viable and creates new cost-efficient gas transport solutions. This will be achieved with a novel offshore and onshore compressed natural gas (CNG) transportation system.

New in the CNG transportation concept is the innovative, patented solution for the manufacturing of Pressure Vessels that are 70% light than current state-of-the-art alternatives. This enables new ship designs with much higher payloads and consequently dramatically lower transportation costs per cubic metre of gas.

The GASVESSEL project fills a market niche in transporting smaller gas volumes, where it is not justified to use LNG concepts or pipelines. For CNG no expensive liquefying and re-gasification plants are necessary, which drive up the costs of LNG. It is also much more flexible than point-to-point pipelines and is also not associated with environmental and political difficulties during construction. These reasons make CNG the most efficient transport method for natural gas up to 2500 km.

GASVESSEL will open up energy routes in Europe to three different oil and gas fields:

- **East Mediterranean gas fields** – the CNG concept will enable supply of remote areas such as the Greek and Italian islands and Cyprus
- **Black Sea region** – CNG transport offers a flexible solution for early start-up of gas exploitation, before the planned pipeline will be finished
- **Barents Sea offshore oil field** – the CNG concept will exploit gas associated to oil winning, which is currently reinjected in the oil fields

Objectives

The main objective is to prove the techno-economic feasibility of the new CNG transportation concept. Three geo-logistic gas exploitation scenarios will be analysed to establish where and how the GASVESSEL concept provides added value. Research and development efforts will concern the functional design of the Pressure Vessel, the prototype facilities and the ship design including gas-compression and decompression systems. This new concept will finally be validated with a cost-benefit analysis and a class design review and safety assessment.

Impact

The GASVESSEL concept contributes to ensuring secure and affordable supplies of energy to Europe by diversifying supply routes. It allows identifying and building new routes that decrease the dependency of EU countries on a single supplier of natural gas and other energy sources. More efficient and economically viable off-shore CNG transport make waterborne supply of currently unexploited gas resources that dramatically exceed current annual gas consumption in Europe commercially interesting.

On top of that, the GASVESSEL concept is expected to open up important additional business opportunities for European industries from shipbuilding, shipping, Pressure Vessel manufacturers, epoxy resin and carbon fibre manufacturers to oil and gas and energy production companies.

Latest News

27 February 2018
GASVESSEL Newsletter 2

16 February 2018
Interview with GASVESSEL coordinator Navalprogetti

2 February 2018
Meet the GASVESSEL consortium

16 January 2018
Letter from the coordinator

18 December 2017
The potential of the GASVESSEL CNG transport system for the East Mediterranean gas market

all news

Latest Events

27 March 2019
Offshore Mediterranean Conference 2019

5 November 2018
Operational Excellence in Oil & Gas Smmit

25 June 2018
27th World Gas Conference

20 June 2018
19th International Conference on Ships and Maritime Research

17 June 2018
ECOS 2018

all events

GASVESSEL Newsletter
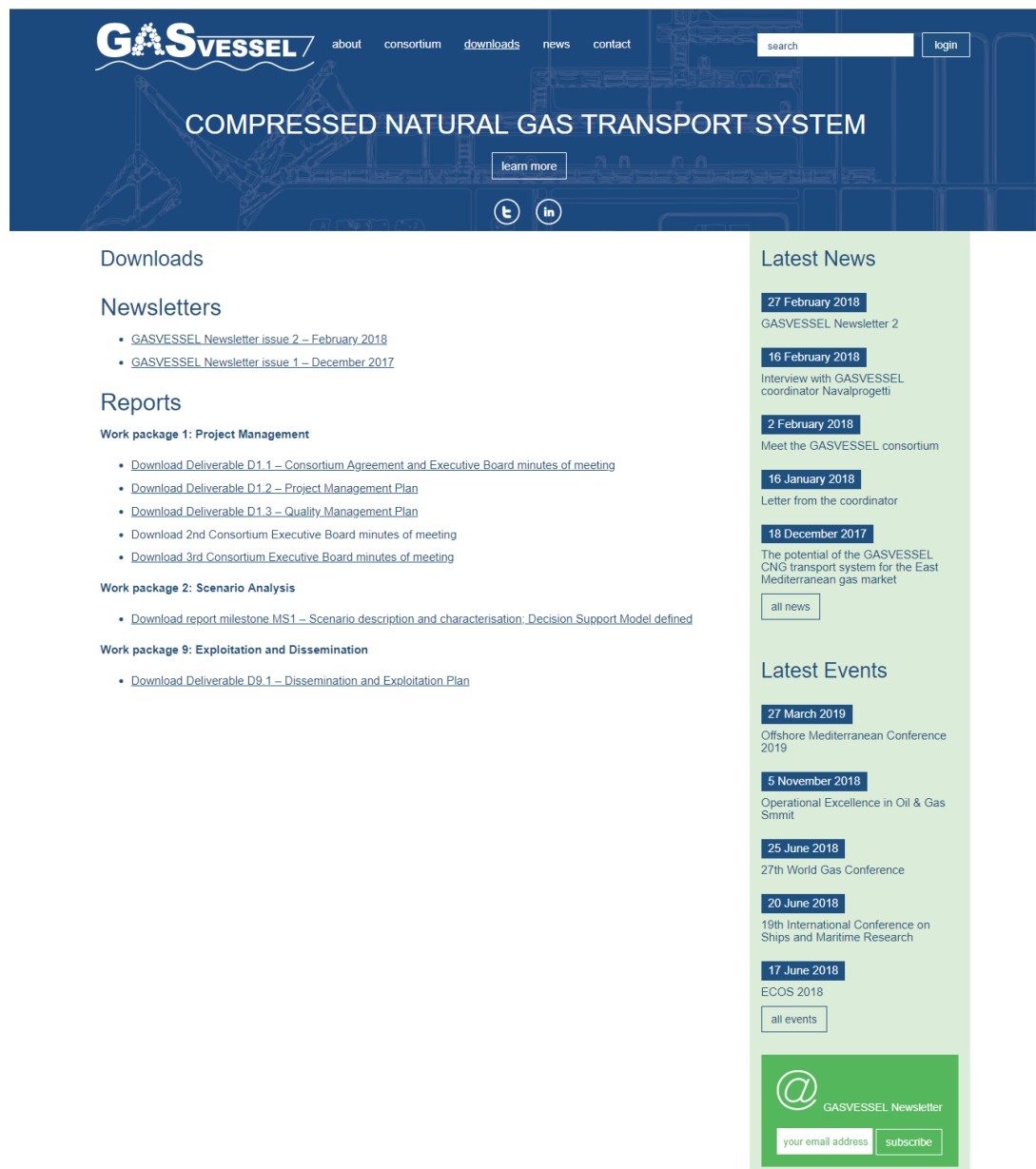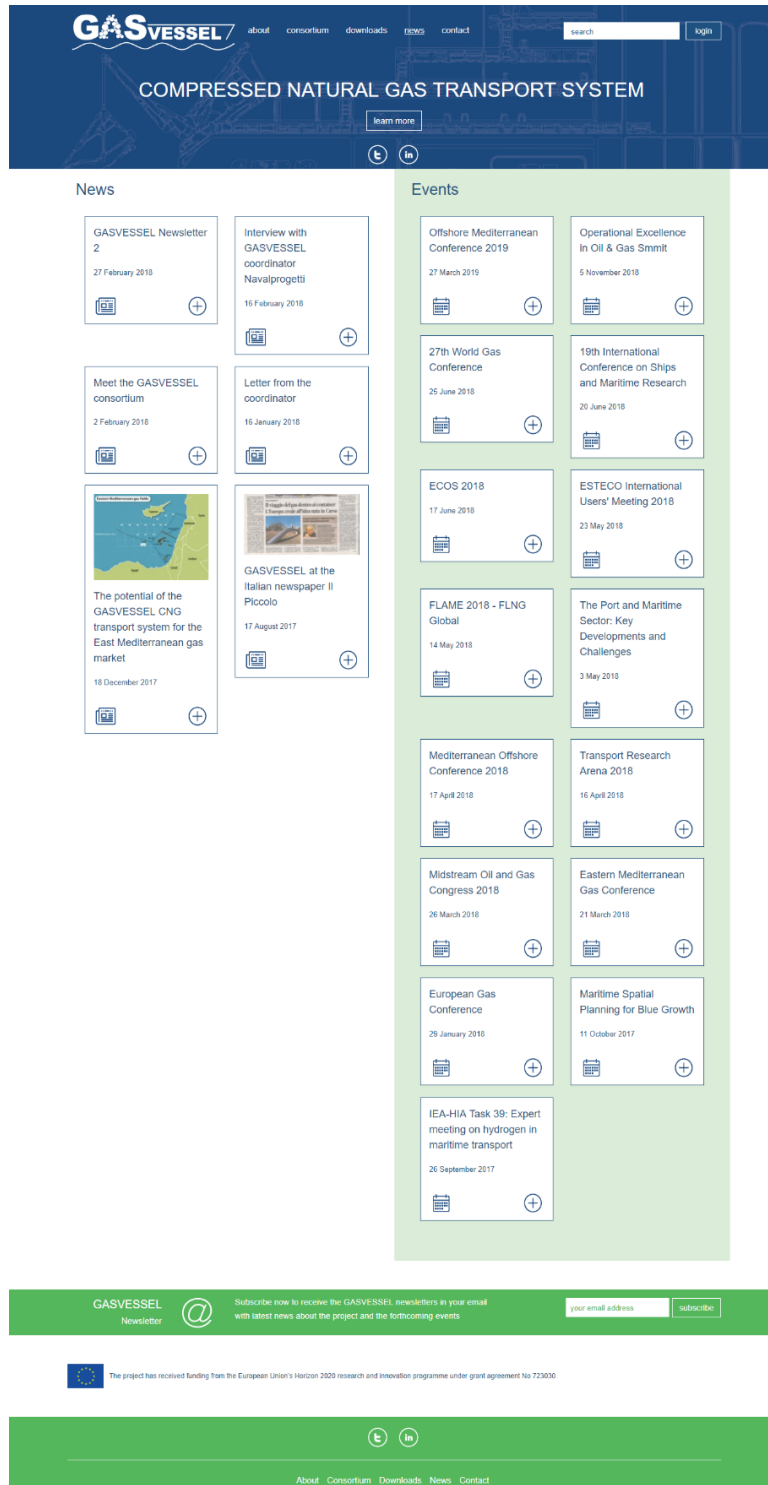
your email address | subscribe

About Consortium Downloads News Contact

3.3 Consortium

This page provides an overview of the GASVESSEL consortium partners in the form of a table with logos and contact information per partner. From this page visitors can access the official websites of the project partners.

This page also features a vertical side news feed. Here below the page impression can be seen.

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3.4 Downloads

This page contains the dissemination materials produced during the GASVESSEL project lifetime, as well as the public deliverables completed by the partners.

At the time of writing the page features newsletters and reports; and contains the vertical news feed.

3.5 News and events

The *News* page contains news and updates about the project, its progress and details of events where GASVESSEL is or will be promoted. This section functions as a news archive of the website, therefore, all news can be found here. The page contains six news items and fifteen event mentions. Homepage news section and the vertical news feeds just show a display of the newest articles and updates. The page is presented here below.

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3.6 Contact

The contact page is meant to allow all interested visitors to contact the project partners using an easy-to-complete form and/or to find contact details of a project-responsible.

The form on this page is linked to a dedicated project e-mail address (info@gasvessel.eu) that is linked to a dedicated Navalprogetti e-mail address and monitored by the project coordinator, Loris Cok. Coordinator's e-mail is also visible on this page in case visitors would like to approach him directly. The page screenshot is available in below figure.
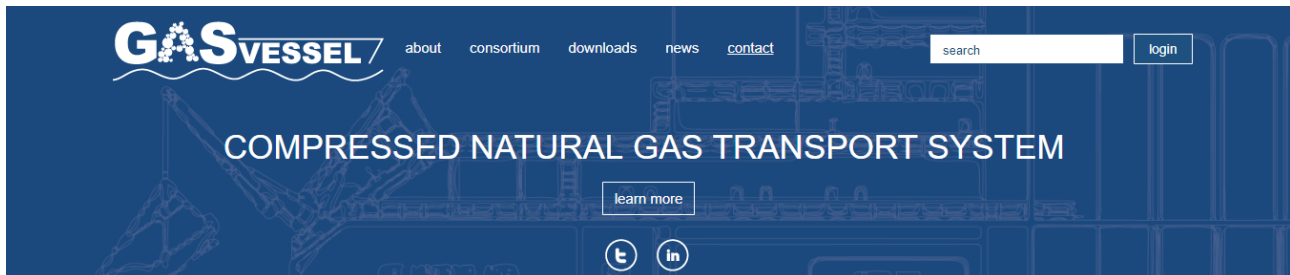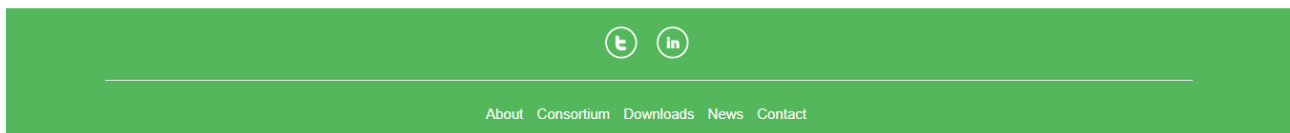
4. Knowledge Processes

The basis for KM comes from the Asian Productivity Organisation (APO) Knowledge Management Framework. The framework is divided into four key factors of knowledge management:

- Vision and Mission

- Accelerators

- Knowledge Process

- Outcomes

KM processes, which are based on the Manual of Knowledge Management Techniques and Tools of the APO (APO, 2010) foresee the following fundamental actions, otherwise also called categories or processes:

- **Identifying the knowledge,**

- **Creating knowledge,**

- **Storing knowledge,**

- **Sharing knowledge,**

- **Applying knowledge.**

Below the five actions are briefly explained:

Identifying the knowledge – it means that knowledge must be identified. Knowledge exist in its first stage as tacit knowledge – as knowledge that is in people's head. In the first stage, this knowledge must be identified. This also includes the general analysis of existing and required knowledge.

Creating knowledge – once having identified the knowledge as required knowledge is has to be created. The creating process is transforming tacit knowledge into implicit knowledge. Implicit knowledge is knowledge that is not yet tangible but could made be explicit.

Storing knowledge – by storing, the implicit knowledge becomes explicit knowledge. Explicit knowledge means that it is set out in tangible form and stored in a certain manner. Knowledge is usually stored as digital data.

Sharing knowledge – after identifying, implicating and explicating knowledge it should be shared.

Applying knowledge – finally, knowledge must be applied. This means applying the right knowledge for the right task at the right place and at the right time.

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Those five above processes are consecutive. The previous process must be completed before to proceed with the next one.

For all those knowledge categories / processes, tools can be used. Some tools cover many different categories, whereas other tools are specialized in one category only.

Tool categories are:

- **Social Media Tools**

- **Video Tools**

- **Collaborative Tools**

- **Other Tools**

It is important that the chosen tools match the knowledge management strategy.

Using tools without a concrete strategy will most likely bring the activity to no results.

In the next chapter, various knowledge management tools are listed and defined.

The tools are below described and explained. You will find definitions, purposes, cases of application of concrete software products). Also, the mentioned knowledge categories are indicated by icons for each tool

Note:

Tacit knowledge is the kind of knowledge that is difficult to transfer to another person by means of writing it down or verbalizing it.

Explicit knowledge is a knowledge that can be readily articulated, codified, accessed and verbalized. It can be easily transmitted to others. Most forms of explicit knowledge can be stored in certain media. The information contained in encyclopedia and textbook are good examples of explicit knowledge.

Explicit knowledge is opposed to tacit knowledge.

The most common forms of explicit knowledge are manuals, documents, procedures, and how-to videos. Knowledge also can be audio-visual. Engineering works and product design can be seen as other forms of explicit knowledge where human skills, motives and knowledge are externalized.

5. Social Media Tools

BLOG

Blog definition	Combination of two words: web and log. It is an online diary or log usually published on the Internet and viewable by the worldwide community or published internally and accessible only for approved parties. A blog contains text, images and links. Blogging allows people to both publish and comment. Blogs are like a keynote where the speaker is in the center and the audience can comment or ask questions.
Why use blogs	Unlike other social media tools, posts on a blog are more persistent. A blog promotes internal communication between employees, On a blog it is very easy to generate and share knowledge, A blog could be used as an efficient communication tool,
How to use blogs	Blogging for knowledge management refers to internal blogging. The information is only accessible within the Organisation. Blogging for knowledge management purposes on a freely accessible blog on the internet is not recommended for companies. Blogs are great to facilitate internal discussions and participation of all employees.
When to use blogs	For Storing Knowledge Sharing Knowledge Applying Knowledge
How to prepare blogs	You must install the blog software on your server or chose an externally hosted blog (see software below). Define who, in your Organisation, can blog on the blog Normally, you will use a blog to inform colleagues about some relevant news. For a blog post, a suitable topic is needed. Once you have found the topic, you will have to decide on a title and how to present it (text, photos or videos). Often you can also give tags – keywords that will enable a better search – or categories to the blog post. What is suitable to be posted on a blog is highly dependent on the organizational culture. Make sure that the content and the comments are appropriate and match the company's standards.

Software for blogs	Free software for hosting blog: *Wordpress.org www.wordpress.org (open source), Drupal https://drupal.org (open source).* You could also use blog-publishing service on the internet and restrict the access to selected people. *Blogger www.blogger.com (commercial, free),* *Wordpress www.wordpress.com (commercial, freemium).*
Tips for using blogs	Communicate the purpose of the blog and create guidelines. Use incentives to get people involved, Make sure that blog posts are not too long, Activate comment function to ease internal communication, Use blogs for news and announcements,

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FORUM

Forums definition	Forum is a virtual space for exchanging and archiving of thoughts, opinions and experiences.
	In forums a message will not be answered directly and immediately, but at different times.
	In a forum you can post texts, links, pictures and videos.
	A forum information is often structured in sections and threads. Each thread consists of posts by users.
	Like blogs, forums can be restricted or freely accessible.
	In a forum, people are considered on the same equal level. This is the main difference with a blog which is focused on one or few bloggers. Nonetheless, also in forums there normally is hierarchy: for instance, moderators have more rights and oversee and monitor the communication activities.
Why to use forums	Forum promote internal communication between employees and facilitate participation.
	In a forum people are on the same level.
	In a forum it is easy to generate and share knowledge.
	Forum is usually more structured than blogs (or other social media).
	Information retrieval is easier since a forum is more structured.
	Forums are in chronological order like blogs. Consequently, they are suitable to post news.
How to use forums	Since you should not share internal and sensitive information with a large public, forums for knowledge management are mainly considered internal forums.
	Consequently, make sure that the information is only accessible within your organisation. Like with blogs, it will be also possible to give access to other approved parties (e.g. customers, partners etc.).
	Nevertheless, one can open a freely accessible forum on the internet. For marketing purposes, or for support of customers, this is an appropriate and suitable approach.
	Roles and responsibilities in a forum (moderators) to be defined.
When to use forums	Forums can be used for Identifying Knowledge 🔍, Creating Knowledge, ✏ Storing Knowledge 📚, Sharing Knowledge 👪 Applying Knowledge 👍.
How to prepare forums	Install forum software on a server or use a cloud-based solution.
	Define the rights of the various roles (regular user, moderator) and create different sections.
	Normally, a regular user cannot create his own section and will only be able to create a thread within such a section.

	Moreover, you should define general forum rules telling the users how to behave in a forum.
Software for forums	Forum popular solutions are: *vBulletin www.vbulletin.com (commercial),* *phpBB https://www.phpbb.com (open source).* You could also use hosted forums in the internet and restrict the use to selected people: *Proboards www.proboards.com (commercial, free),* *vBulletin www.vbulletin.com (commercial).* Often forums are integrated in other software services or you can also integrate your forum in your blog *(e.g. http://bbpress.org/ open source for wordpress.org).*
Tips for using forums	Forum post must be short. Communicate the purpose of the forum and create guidelines. Use incentives to get people involved. Make sure, if a forum and a blog are in use, that they do not overlap.

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SOCIAL NETWORKS

What social networks are	A social network is a community with various actors and connections between them. People can share information and communicate with other people. The advantage of digital social networks, compared to traditional ones, is that it makes visible the social ties between these actors. Consequently, it is easier to utilize the social network. Unlike forums or blogs, which are topic based, a social network is based on people and relationships. This makes social networks valuable for knowledge management. There are also available social networks for companies. Those services are mostly cloud based. Of course, it is also possible to use "regular" social networks (like Facebook) and work with restricted groups. However, due to privacy and legal reasons, this is only recommended for few exceptions.
Why to use social networks	Main benefit of social networks and its characteristic is that it makes social ties visible. Social networks include various functions and cover various needs for knowledge management and communication. Social networks are informal. They are suitable for quick exchange, but information retrieval is normally difficult. Social networks are good for contacting people and asking for expertise, it is very easy to generate and share knowledge in social networks. Social networks easily engage people to collaborate and generate new knowledge.
How to use social networks	Social network can be used in many different ways, consequently, it is important to define the role of the social networks in the company's strategy. It can be used mainly for fostering communication amongst employees and to spread (informal) news. It can be used for informal chats and in this way, it can be a supplement to internal communication tools or internal emails.

	It will help to make social ties visible but for micro and small companies this is often less important since employees are each other familiar.
When to use social networks	Social Networks are used for Identifying Knowledge 🔍 and Sharing Knowledge 👥 .
How to prepare social networks	Social networks are normally cloud based. Consequently, it is not necessary to install software but just select the right provider. One of the benefits of a post on social network does not need any preparation. One just post what is on his mind and what fits the company's guideline.
Software for social networks	*Yammer https://www.yammer.com/ (commercial, freemium), Sap Jam http://www.sap.com/pc/tech/cloud/software/enterprise-social-networking/collaboration/index.html (commercial, free), Jive http://www.jivesoftware.com/ (commercial).*
Tips for using social networks	Create a complete profile (job title, picture etc.) and update it. The purpose of social networks are questions and discussions – do not be afraid of using it. Sharing important information with other people. Joining groups and follow people.

WIKI

What wikis are	Wiki (Hawaiian for "quick"), also called WikiWiki or WikiWeb, is a hypertext system for web pages. Those web pages cannot only be read by users but also directly edited in the web browser. The objective is to gather experience and knowledge collectively and document in an understandable form for the target group. The most famous example of a wiki is Wikipedia. In a wiki, the authors collaboratively develop a text which can be supplemented by photos or other media. This is made possible by a simplified content management system which is the actual software of a wiki.
Why to use wikis	Wikis are ideal for saving information, experience, knowledge. Wikis are an efficient supplement to other tools like blog or forum, Wikis are great for collaboration since one can create his own text together with other people. Wikis are not suitable for news and announcements. Even though wikis support collaborative working, they are not appropriate for internal communication.
How to use wikis	In a wiki, everybody can create a new article. If one searches for a term in a wiki and does not find it, wiki offers the possibility to write a new article. Likewise, every user can edit articles. However, it is also possible to restrict editing options if necessary. The hyperlink system is one of the main advantages of a wiki. It helps to interlink all the articles on the wiki. For writing, editing, formatting, interlinking etc., articles one must follow the rules given by the wiki software.
When to use wikis	For Creating Knowledge , Storing Knowledge , Sharing Knowledge , Applying Knowledge .
How to prepare wikis	Download MediaWiki (or a similar software) and install it on a server. Wikis are living documents. If users contribute, it will grow constantly. As Wikipedia shows, wikis can by self-governed. In a company a more structured approach is needed: guidelines are necessary stating what should be in the wiki and who is responsible.

Software for wikis	*MediaWiki www.mediawiki.org/wiki/MediaWiki (open source).*
Tips for using wikis	• Wiki makes perfect sense in a combination with a forum or blog for less structured information (news, announcement) and a repository for data. • Wikis can be the backbone for knowledge management system and can be used to document experiences, knowledge, processes etc. • Wikis are simple to use but more complicated than a forum, blog or social network. Consequently, trainings on how to write and edit on a wiki is needed.

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6. Video Tools

KNOWLEDGE PILLS

What knowledge pills are	Knowledge pill is a small unit of knowledge in a multimedia format to be used "just-in-time". Knowledge pills allow users to immediately overcome a situation in which there is a lack of knowledge needing to be supplied immediately.
Why to use knowledge pills	Knowledge pills create a rapid, accessible platform to capture and redistribute tacit knowledge in the organisation. It offers the opportunity to train employees in the workplace.
How to use knowledge pills	There are various formats for knowledge pills: audio, video, and multimedia presentations. Audio knowledge pills can be used to explain the reasons for a procedure and even the steps of the procedure. Video knowledge pills are ideal for situations requiring step-by-step instructions that are best understood visually (for example, how to use machines and tools on a production line). A multimedia knowledge pill is a form of presentation that enables a set of steps to be carried out using computer application, and that explains the steps as they are performed.
When to use knowledge pills	Knowledge pills are used for Storing Knowledge 📚, Sharing Knowledge 👪, Applying Knowledge 👍.
How to prepare knowledge pills	Define the kind of content necessary to prepare knowledge pills and what kind of format is better for the foreseen content. For preparing knowledge pills, and depending on the format (audio, video, or multimedia presentation); the most important steps are: • diagnosis (identifying requirements and experts). • content creation (creating knowledge pills, and validation by other employees with the same knowledge). • dissemination (training and / or awareness action on how to use knowledge pills). • assessment (assessing knowledge pills and preparing new relevant content). A knowledge pill includes: • A title, which should clearly identify the objective of the knowledge pill, so that whoever reads it immediately understands the content required. • Question asked clearly and directly. • Reply given by someone with good knowledge of the problem.

	• List of credits: information about who produced the knowledge pill, and who supported its creation. • Keywords/tags that enable a better search of knowledge pill.
Software for knowledge pills	The key feature while using knowledge pills is the simplicity, which must influence decisions made regarding technology. A range of programs are available: *Camtasia Studio www.techsmith.com (commercial),* *Captivate www.adobe.com (commercial),* *Camstudio www.camstudio.org (free),* *Wink www.debugmode.com/wink/ (free).*
Tips for using knowledge pills	In designing knowledge pills, it is important to: • Be brief and specific so that the video does not exceed 4 or 5 minutes at most. • If required, make more than one video – if the material is such so that a single short video is not sufficient, divide the material into sections. Normally it is easier to watch 5 or 6 videos of 3 or 4 minutes each, rather than one video of about 25 minutes. • Set up and configure a channel on YouTube. YouTube makes easier to view and share video tools. Fill the description of each video, with a clear and specific title, and keywords.

VIDEOCONFERENCE

What video-conferences are	Videoconference technology (hardware and software) provides two-way audio and video communication (video and data) that allows people located in different places to communicate on an interactive, real-time, simultaneous basis, as if they were in the same place. Videoconference offers telematic facilities such as exchanging graphics and images, transferring files between computers, sharing screens, etc.
Why to use videoconferences	Videoconference gives the opportunity: • To learn by participating in two-way communication forums. • Collaborate with colleagues across the company, even if they are on the other side of the world. • Collecting and sharing information and experiences on-line. • Increasing productivity and maintaining connections between colleagues, customers and providers, avoiding costs and travel time, • Allowing face-to-face interaction between distant points. • Of displaying the same computer screen for all participants at the video conference

How to use videoconferences	Videoconference can be as simple as a conversation between people in private offices (point-to-point), or it can involve several (multipoint) sites in large rooms at multiple locations.
	Besides the audio and visual transmission of meeting activities, related videoconference technologies can be used to share documents and display information on whiteboards.
	Videoconference has many uses in distance-learning and business environments. Its versatility can support different activities, from the simplest to those with high complexity, due to the number of connected sites, or the content, or resources used.
When to use videoconferences	Videoconferences can be used for Identifying Knowledge, Creating Knowledge, Sharing Knowledge, Applying Knowledge.
How to prepare videoconference	Before the videoconference:
	• Plan and test the presentation (or agenda).
	• Simulate face-to-face appearances as closely as possible.
	• Ensure that all participants are involved.
	• Pay special attention to the time set for the submission.
	During the videoconference:
	• Speak clearly and try to maintain constant volume.
	• Take regular breaks and use them as thinking time.
	• Allow participants to participate.
	• Give a clear indication of when someone has finished speaking and is waiting for a reply.
	• Graphics, images, or any material used should be left displayed for longer than usual.
	• Try to involve the audience.
	• Use a variety of ways to attract attention.
	After the videoconference:
	• Evaluate the experience done.
	Other material necessary for the creation of videoconferences:
	• Video camera or webcam.
	• Computer monitor, television, or projector.
	• Microphones, CD / DVD player, cassette player, or any other pre-amp audio outlet source.
	• Loudspeakers associated with the display device or telephone.
	• Analogue or digital telephone network, LAN, or Internet.
	• Data-processing unit that ties together the other components, and and maintains the data linkage via the network.
Software for videoconference	Programs and software packages depend on the number of participants:
	Skype www.skype.com (free).

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	Gotomeeting www.gotomeeting.com (commercial). *Google Hangout https://www.google.com/+/learnmore/hangouts/ (free).* *Adobe Connecting http://www.adobe.com/es/products/adobeconnect.html (commercial).* *Cisco Webex www.webex.com (commercia)l.*
Tips for using videoconference	Configure and use and an adequately-supervised videoconference system to avoid computer hackers entering company premises. Be always sure to have good audio and video.

WEBCAST

What webcasts are	Webcasting means broadcasting over the internet, i.e. the distribution of content (audio and video) to a widespread audience. A webcast is a media presentation distributed over the Internet using streaming media technology to distribute a single content source to many simultaneous listeners / viewers. A webcast may either be distributed live or on demand. The transmission is done using streaming technology. Terms like audio web-cast, video webcast, audio-streaming, and video-streaming are used to refer to the same concept. The transmission can cover just audio or just video, depending on the requirements.
Why to use webcasts	A webcast is a tool that allows real-time (live) communication with any part of the world, with customers, colleagues, and suppliers – as well as a target audience. A webcast can be done at low cost with a computer, webcam, and microphone, as well as speakers and Internet connection. A webcast is an effective investment considering the service received and the quality of communication. In addition, the communication can be copied and saved for future use.
How to use webcasts	A webcast has many uses among the organisations, and it could be used in different departments. It is frequently used in internal and external meetings; and as tool for selling products. It can be used in training sessions and for giving website support. Webcast tools permit digitizing internal training and transmitting internal knowledge to the organisation.
When to use webcasts	Webcasts are used for Storing Knowledge , Sharing Knowledge , Applying Knowledge .
How to prepare webcasts	Communication processes requires, as a minimum: • a transmitter, • a receiver,

	• a message, and • a medium. In a webcast, the medium used is the internet. The process for developing a webcast has 4 steps used according to a customer's needs as well as the final configuration of the service: • Pre-production: • Production: • Transmission • Post-production: A webcast is an excellent communication alternative. Large companies, that train their staff, and organisations which mission is the dissemination of knowledge and / or professional development, can use these options: • live webcast – seminar open for all people who want to participate. • closed live webcast – limited only to people who were previously involved. • pre-recorded or deferred webcasts – after a training session, lecture, or seminar has been transmitted openly. • pre-recorded or deferred webcast – after a training session, lecture, or seminar has been transmitted in closed form, only to people who were previously-enrolled participants. • digitization and web optimization of existing videos so that they can be used by anyone who wants to take part, or by private groups, as required, • selling goods – a webcast allows improvement of the level of service provided to customers, giving them more inventive to purchase products.
Software for webcasts	*Webex www.webex.com (commercial),* *Adobe Flash Media Live Encoder www.adobe.com/es/products/flash-media-encoder.html (free).*
Tips for using webcasts	No more than 30 to 60 minutes long. A common format is 40 to 45 minutes of content followed by a 15 to 20 minutes Q&A session, Support with an on-line MS PowerPoint presentation, including interactive surveys, video, use of a whiteboard, and other media elements, Use web casting service.

WEBINAR

What webinars are	A webinar is like a personal meeting. It allows participants to interact each other. The number of participants goes from a minimum of 2 up to over 80 people. It is a way to share information, give a speech, or teach a course in real time and with the same quality as if it were carried out in a classroom. There are applications in which users can request a microphone and talk, ask questions, and interact with speakers, or use a chat facility included in the session. More clearly webinar is a conference, workshop, or seminar transmitted via the web. The word comes from the combination of web and seminar. Webinars are online in real time, with a specific date and time. Participants can attend from any computer or smartphone in the world using a link sent by the organizer. There is often one transmitter and many participants, who can see the screen and the speaker's presentation and listen to what the speaker says. Usually participants can ask questions via a chat facility. Interventions using voice, even if feasible, shall be avoided because can generate noise and are difficult to manage.
Why to use webinars	Thanks to shared applications, a webinar has the great advantage of offering participants a range of teaching and learning opportunities.
How to use webinars	Web seminars (webinars) are used for on-line training and online events such as conferences and may have more than 100 participants. Solutions for webinars greatly facilitate the invitation process and the presentation of information to large audiences (based on the communication principle of "one to many"). Someone use the webinar to present products and services, and in this way, the knowledge can be shared. For preparing the webinar, it´s necessary to select a hosting service for the webinar, and to identify the topic presented. Coordinator must identify the audience and send invitations to customers.
When to use webinars	Creating Knowledge ✎ , Sharing Knowledge 👪 , Applying Knowledge 👍
How to prepare webinars	Select the most appropriate tool. Choose a topic that is interesting or useful, Be clear about the target audience, Select the day. Give wide diffusion using email and social networks – Twitter, Facebook and LinkedIn, indicating the duration of the webinar, the topics to be discussed, participants, and objectives.

	Give e-mail notification on the day before the webinar to remind people who have signed up. A text message can be sent half an hour before starting, Prepare contents in advance. The webinar should be considered as a conference or seminar with many participants, so preparation work must be done in the same way as for an off-line session, The appropriate duration for a webinar is about 45 minutes, with an open Q&A session, Check running time so that the webinar does not over-run, Upload the webinar to the internet and send it to participants who wish to hear it again, Broadcast the webinar to people interested in the subject who did not attend the webinar itself.
Software for webinars	Commercial: *Gotomeeting http://www.gotomeeting.es/,* *Gotowebinar http://www.joinwebinar.com/,* *Meetingburner.com www.meetingburner.com,* *Livestream: http://new.livestream.com/,* *Ustream.com http://ustream.com,* *Anymeeting http://anymeeting.com,* *Banckle.com http://banckle.com/,* *Mashme.tv www.mashme.tv,* *Spontania www.spontania.com,* *Wiziq.com http://wiziq.com,* *Bigbluebutton.org http://bigbluebutton.org/,* *Join.me http://join.me,* *Adobe Connect: http://www.adobe.com/es/products/connect/,* *Webex.com www.webex.com,* *Huddle www.huddle.com/,* *Meetin.gs http://meetin.gs,* *Twiddla www.twiddla.com.* Free: *Facebook: Video Calls: https://es-es.facebook.com/videocalling,* *Skype: Group Video Calls https://support.skype.com/en/faq/FA2831/ making-a-group-call-windows-desktop,* *Google+: Hangouts: https://plus.google.com/hangouts,* *Fuze meeting www.fuze.com.*
Tips for using webinars	Prior registration for the webinar, to plan it and to obtain contact details, e.g. e-mail address, that will allow a database to be compiled so that the webinar can subsequently be sent out if necessary. Live public broadcasting, not just for webinar participants. Live transmission of the host's screen. Option to record the webinar in audio or video. Option to share files with participants, Option to work on-line with documents shared between participants.

7. Collaborative Tools

AUDIOCONFERENCE

What audioconferences are	Audioconference is a type of phone call in which the person who initiates the call wants to have contact with more than one other person, and *vice versa*. An audioconference is usually designed so that the people who are calling can participate in the communication.
Why to use audioconferences	An audio conference is a useful way of meeting distant partners, customers, clients, and workers, inside and outside the company. Other common applications are client meetings, sales presentations, project meetings and updates, regular team meetings, training classes, and communication with employees who work in different locations. Audioconferences allow a reduction in travel costs. They allow workers to be more productive by not having to leave the office for meetings, especially when they work in remote locations or sites.
How to use audioconferences	An audioconference is very useful for conversations with a group of people when there is no need for visual presentations or image support. Audio conference is a tool for transmitting knowledge, ideas, and conclusions, on a formal or informal basis. It is also used to communicate important matters quickly, with immediate feedback being available at the time of transmission.
When to use audioconferences	Audioconferences can be used for Identifying Knowledge 🔍, Sharing Knowledge 👪, Applying Knowledge 👍.
How to prepare audioconferences	Provide a list of the people and their details (telephone number(s) and e-mail address (es)) who are invited to attend. An invitation e-mail message must be sent out indicating the reason for the audioconference and with a brief agenda setting out what is involved. For an efficient audio conference an agenda should be distributed to all the participants. This can be done by the above-mentioned e-mail or other communications tools.
Software for audioconferences	*Cisco Webex www.webex.com (commercial),* *Google Hangout www.google.com/+/learnmore/hangouts/ (free),* *Skype www.skype.com (free).*
Tips for using audioconferences	Ensure that the group is present and that members take part actively: • become familiar with the equipment and technology. • avoid background noise and disturbance. • good coordination by the initiator of the audioconference.

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	• moderator to provide a sufficiently active experience. In some cases, it makes sense to record the audio conference, for other partici-pants or for reviewing the conference.

CHAT

What chats are	Chat is a written communication that takes place instantaneously using software over the internet. Chat could be public or private. A chat is used to communicate with groups of people who give their opinions on various topics and who communicate between themselves.
Why use chats	A chat session is used to communicate and to share files quickly and without interrupting daily work. Chat tools allows users to indicate if they are away / busy / invisible, etc., should they not wish to be interrupted or disturbed. Chat is useful because almost all chat applications can be used on smartphones: WhatsApp, Skype, Hangout, Gmail, etc.
How to use chats	Depending on the type of chat session used, users can follow on-line conversations with a chat-type messaging system. Skype also allows users to communicate in writing privately or in groups with a pre-created group of people. Chat sessions are useful for quick conversations and quick questions that do not call for prior planning. Many chat tools keep a written record of conversations.
When to use chats	Identifying Knowledge 🔍, Sharing Knowledge 👥.
How to prepare chats	No great preparation is needed. People involved in the chat session should have access to the chat device / tool or chat channel. Sometimes, participants are required to register their access as users. A computer, smartphone, or tablet, as well as the same software installed for all chat participants are needed. With Gmail, an e-mail account is required. With Skype and other platforms, users must create an account.
Software for chats	*Gmail chat www.gmail.com (free),* *Facebook www.facebook.com (free),* *Skype www.skype.com (free),* *Google Hangout https://plus.google.com/hangouts (free).* Some software companies can use their own server to have an internal chat sys-tem. For example, *PIDGIN www.pidgin.im (free).*
Tips for using chats	• Use correct expressions to ensure that the conversation is understood correctly. • Send files that are not large.

	• Avoid communication that is significant or that is private and that cannot later be saved, or, on the contrary, that can be recorded and subsequently accessed. • Users must change the access codes for their chat channels so that a chat session can only be initiated by those contacts who have previously been accepted, and not by any internet user.

COMMUNITY OF PRACTICE

What communities of practice are	Communities of practice are social groups formed in order to develop specialized knowledge, sharing practical experiences. Communities of practice are small groups that share common interests and have a high cohesion and strong mutual commitment.
Why to use communities of practice	Communities of practice are made of teams within the organisations. Communities of practice are ideal social structures for administrators to assign tasks and responsibilities with reference to a project. The main advantage is that Community of practice increases the level and flow of knowledge. Communities of practice allow the elimination of egos that create impediments to the process. Information and knowledge belong to the community, with individuals being recognized for their participation and leadership. Communities of practice: • improve the quality of decisions. • are resources for implementing strategies. • allow co-ordination and synergies across units. • offer an arena for problem-solving. • increase retention of talent. • are knowledge-based alliances. • provide capacity for knowledge-development projects.
How to use communities of practice	Community of practice permits to create and to share knowledge through social groups and social interaction between people sharing tacit and explicit knowledge.
When to use communities of practice	Identifying Knowledge 🔍 ,Creating Knowledge, ✏️ Sharing Knowledge , 👥
How to prepare communities of practice	Structural elements must be considered: • Domain – the definition of the area of common interest and of key aspects to be improved. The domain is the area that unites members of the community and allows creation of a feeling of common identity. The domain inspires members to contribute and to participate. • Community – relationships and the feeling of belonging that are established between members. • Practice – the body of knowledge, methods, histories, case studies, tools, and documents. Practice is a body of ideas, tools, cases, information, histories, and documents that a community share.

Software for communities of practice	Blogs: *blogger www.blogger.com (free),* *Wordpress https://wordpress.com/ (free/commercial).* Social Networks: *YamMer www.yammer.com (commercial),* *Elgg www.elgg.org (commercial),* *Facebook groups https://www.facebook.com/about/groups (free),* *Asana https://asana.com/ (free, commercial).*
Tips for using communities of practice	Lack of face-to-face contact means that developing widespread communities of practice calls for time and a constant review of objectives and practices, in order to keep the community active. Threat exists when there are passive participants who never become full members, thus damaging the proper functioning of the community. An important dilemma lies in how to motivate community members to participate and share their knowledge openly.

MIND-MAP

What mind-maps are	Mind map is a diagram used to visually organize words, ideas, tasks, designs, and other concepts linked and arranged radially around a central word or idea. Mind-Map is the visual way to organize information. The mind map is often created around a single concept, drawn as an image in the center of a blank landscape page, to which associated representations of ideas such as images, words, and parts of words are added. Major ideas are connected directly to the central concept, and other ideas branch out from major ideas. Mind map is a graphic way of representing ideas and concepts. It helps to structure information, allowing a correct analysis. Mind map is an excellent way of summarizing complex presentations and concepts, keeping the public involved in generating new ideas during the gestation of a project. Mind map is a graphic tool, which makes it simple and powerful.
Why use mind-maps	A mind map is used to present projects visually and graphically to a group, and to request active participation, generating new ideas and encouraging active discussion.

	The graphic representations generated are like representations that are generated by the human brain. A mind map has analytical and artistic seams, which increase the range of possibilities for its relevant implementation.
	Mind map is useful for:
	• Presenting projects in a visual and graphic format to a group and to request active participation, generating new ideas and encouraging active discussion.
	• When work must be done on a collaborative basis, with a whole set of solutions or alternatives being brought in response to a central need, problem, or idea.
	• Making easier to structure a complex project or idea.
	• Creative sessions and teamwork.
	• Organizing ideas around a key theme and drawing conclusions.
	• Creating a process diagram.
	• Showing information in an ordered form to clients or to a team.
How to use mind-maps	Mind-mapping was developed by Tony Buzan. It is a technique for collecting ideas that combines the activities of the brain's two hemispheres:
	• the right, which generates ideas;
	• the left, which orders, classifies, and structures ideas.
	According to Buzan, every bit of information that reaches the brain is processed as a central sphere from which branches spread out several information links. Those links represent an association, which in turn has its own, infinite network of links and connections.
When to use mind-maps	Identifying Knowledge, 🔍 Creating Knowledge. ✏️
How to prepare mind-maps	Place the main idea at the center of the map:
	• Set down what must be developed or the starting point for the project / need / debate.
	• Using free association and brainstorming, put down what the idea generates: concepts, persons, objects (no limits).
	• Write down the words that describe the concepts spreading out from the key word.
	• Draw the lines that link the concepts. Use lines of different colors to differentiate relationships.
Software for mind-maps	*Freemind http://freemind.sourceforge.net/wiki/index.php/Main_Page (free), Freeplane http://freeplane.sourceforge.net/wiki/index.php/Main_Page (free), Xmind http://www.xmind.net/ (commercial), Mindmeister http://www.mindmeister.com/ (commercial).*
Tips for using mind-maps	• Do not impede participants' creativity.

- Create a friendly setting environment, suitable for the generation and flow of ideas.
- Do not criticize or express judgment on previous concepts.
- Encourage group participation and diversity.

8. Other Tools

INTRANET

What intranet is	Intranet is a computer network that uses Internet Protocol technology to share information, operational systems, or computing services within an organisation. According to its definition intranet is often used in contrast to extranet, which refers to network between organisations or public network in general. Intranet can be all the network and software resources which are only available within organization's private network.
Why to use intranet	Intranet is a great organization productivity tool which does not require any substantial investments of additional resources. Based on specific needs, it can be a great tool for storing and sharing organization digital documents but can be also used for more advanced features and set up an entire collaboration environment. Intranet will help in creating, storing, organizing, and sharing organization knowledge and other digital assets and at the same time it can protect those assets from external threats. Intranet is generally used for the following distinct purposes: - content (e.g. creating, storing, sharing document). - communication (e.g. circulating internal corporate announcements). - activity (e.g. filling in vacation request form). - collaboration (e.g. by using internal wiki for working on projects). - culture (e.g. private communication and file sharing space for organization's team).
How to use intranet	Based on different scenarios and examples of using Intranet in the organization environment, one of simplest uses, but with great benefits, are shared resources, more specifically shared folders/drives. Going back to Intranet basic description, we can say that switching from saving files in computers to using shared drives is of great benefit to any organisation since it will ensure that all important files are always accessible and that they are easily shared among co-workers.
When to use intranet	Creating Knowledge, ✏ Storing Knowledge 📚, Sharing Knowledge 👥 Applying Knowledge 👍.
How to prepare intranet	One of prerequisites for establishing intranet is setting up private and secure computer network. After computer network is running, available appropriate software can be installed on these internally available resources.

Software for intranet	Considering intranet definition and the fact that in the intranet one can use any software, the right software is the one that will enable to establish private organization network. The following software categories and protocols need to be considered: • Standard network hardware and software technologies like Ethernet, Wi-Fi, TCP/IP. • Web browsers and web servers. • Firewalls.
Tips for using intranet	One of the key aspects of intranet is that all the resources are available over private and secure network. By using resources, available over intranet, the company will usually share and store sensitive and private data, consequently the security of this environment must be considered very seriously.

DOCUMENT MANAGEMENT SYSTEM

What DMS is	Document Management System is a computer program or a set of computer programs used for storing and managing electronic documents. In the beginning, Document Management System was used to track and manage paper based documents. Later, with IT progress, Document Management System started to be used to manage digital documents
Why to use DMS	Many companies have its documents stored in different locations: on desktop computers, laptops, usb sticks, etc. This is not acceptable. By using Document Management System instead, the company easily manages business critical documents (e.g. contracts, proposals, agreements, marketing and sales materials and technical documents). The standard Document Management System also enable full version control, ensuring that employees always have the right version of the needed file, and full access from anywhere, any time.
How to use DMS	Due to a wide variety of features, Document Management Systems can be used in different ways, depending on concrete needs of the users. The Document Management System consists of a series of folders organized according to the user's requirements. Permission is usually set on the folder and file level. According to the permission, users can use the system, that is create, upload, search and download documents.
When to use DMS	Creating Knowledge ✏, Storing Knowledge 📚, Sharing Knowledge 👥, Applying Knowledge 👍.
How to prepare DMS	The typical DMS can be used as cloud based or locally installed solutions. In both systems (cloud based and locally installed) the DMS administrator has privileges to add repositories, users and to assign appropriate privileges.

Software for DMS	Alfresco http://www.alfresco.com/ (free), OpenDocMan http://www.opendocman.com/ (free), Google Drive https://drive.google.com/ (free), Microsoft SharePoint http://office.microsoft.com/en-001/sharepoint/ (commercial), Documentum http://www.emc.com/domains/documentum/index.htm?id=14 (commercial), Confluence https://www.atlassian.com/software/confluence (commercial).
Tips for using DMS	DMS can be very helpful for the organization if used wisely. The main problem that can arise is the lack of organization and structure since the typical DMS does not limit the users in using the system as they like. If those using the system are not well organized and do not follow general rules (file naming, appropriate folder structure) the usage of the system will be rather difficult.

KNOWLEDGE BASE

What knowledge bases are	Knowledge base is a centralized repository for information. It can be considered as a sort of public library or a database of related information about a subject. Additionally, knowledge base can be defined as a database in which information is collected, organized, shared, searched and used by various target users or systems.
Why to use knowledge bases	Knowledge base is a great tool when there is a need to provide structured and well organized access to a large pool of information. The tools for knowledge bases guide the users and provide functionality which enables effective collection, organisation and sharing of various information. Any information in knowledge base will remain as a valuable company asset and there will be no information loss (or minimal) because of employees fluctuation. By its effective usage, knowledge bases can help in ensuring free flow of information and ideas inside the company and in building good relations with partners, clients which is essential for any successful company.
How to use knowledge bases	The most important aspect of knowledge base is to ensure cataloguing, gathering (and create if missing) all relevant information for specific topics. Like an FAQ (frequently asked questions), a knowledge base is designed to organize and present the most common questions or problems with explanations on how to solve them.

When to use knowledge bases	Storing Knowledge 📚, Sharing Knowledge , 👪 Applying Knowledge 👍.
How to prepare knowledge bases	The basic element of a knowledge base is a software platform which will enable easy and effective creation and provide the knowledge that is intended to be delivered. These software-based solutions may vary greatly depending on specific purpose, but in general terms all of them should provide tools to create, organize, collect and share desired information. Based on the given requirements, there are cloud based or locally installed alternatives.
Software for knowledge bases	*Google Drive https://drive.google.com/ (free),* *Zoho Online Knowledge Base http://www.zoho.com/wiki/knowledge-base-software.html (commercial),* *Knowledge Base Made Simple http://www.kbpublisher.com/ (commercial).*
Tips for using knowledge bases	To be useful, the knowledge base should contain as much relevant information as possible. Besides mere quantity of information, an important aspect of any quality knowledge base is its organization. To be useful, robust information must be well organized and easy to understand. Provided information should not be extensive but brief, informative and useful in order to allow end users to find the right answer at the right time.

LEARNING MANAGEMENT SYSTEM

What LMS is	Learning Management System (LMS) is a software application for the administration, documentation, tracking, reporting and the delivery of e-learning education courses or training programs. Learning Management Systems have emerged from classical educational environment where they were used to deliver learning to their students and to track their progress (learning activities). Learning Management Systems started to be used by companies to deliver online training for their employees and customers. Almost all the LMSs are web-based platforms and used to facilitate access to learning content and student/participants administration.

Why to use LMS	LMS delivers and manages instructional content, identifies and assesses individual and organizational learning or training objectives, tracks the progress towards meeting those objectives, and collects and presents data for supervising the learning process of organisation. In a company environment, and especially in relation to knowledge management, LMS is typically used to deliver some sort of training to the employees. Using LMS, it is ensured that company knowledge of specific topics is effectively captured, transformed into format that can be easily shared and learned by employees, who need this specific knowledge.
How to use LMS	There are different ways of using LMS, depending on specific needs. The most common scenario is to deliver some sort of online learning or training. Typically, the LMS environment is divided into smaller units called courses. Courses can cover one small specific topic or can cover large numbers of topics. Learning Management Systems are typically used to store and share company knowledge about specific topics.
When to use LMS	Storing Knowledge , Sharing Knowledge , Applying Knowledge .
How to prepare LMS	Learning Management Systems can be used as cloud-based solutions or more typically as a locally installed platform. After installation, the system administrator or the person that is assigned appropriate privileges can create courses and assign users to those courses. Typical users are: - teacher: person who will create course content (lessons, activities, evaluation, etc.). - student: person who will take the course in order to gain new knowledge. In a company environment it is often important to track user progress so it is possible to assess the employee's training and self-development.
Software for LMS	*Moodle https://moodle.org/ (free)* *Canvas http://www.instructure.com/ (free)* *Sakai http://sakaiproject.org/ (free)* *Blackboard http://www.blackboard.com/Platforms/Engage/Products/LMS-Classroom-Solutions.aspx (commercial)* *Desire2Learn http://www.d2l.com/ (commercial)*
Tips for using LMS	The quality of course in LMS depends on the quality of developed materials (lessons) but also on the fact how these materials / lessons are presented to the

	users (how pedagogical aspects and instructional design principles incorporate into the course).
	It is important to consider what type of course we need to create, since the entire content and organization of the course must reflect it.

9. Overview of the applied Knowledge Management strategies

Three are considered the leading models of Knowledge Management strategies:

- Resource model
- Japanese model
- Process model

Resource model (known also as Wellsprings of Knowledge) was created at Harvard Business School in the mid-90s as a result of researches about the innovation of industrial companies.

The strategy considers Knowledge as a main company resource and a real product. It is characteristic for companies that determine its functionality by way of the level of the employees' intellectual abilities. The aim of this strategy is to protect and to use knowledge to produce new stores of knowledge.

The source of knowledge may be the company itself and its environment.

Resource model requires the cooperation of several aspects:

- importing the ambient knowledge.
- joint problem solving.
- experiment.
- implementation and integration of new tools and technologies.
- key skills that include physical and technical systems, management systems, knowledge and skills, norms and values.

Weaknesses of the Resource model:

- the model is not too innovative.
- is based mainly on industrial economy.
- many companies exploit existing knowledge, and do not create new knowledge.

Japanese model. The model indicates two kinds of knowledge:

- Silent (hidden)
- Formal (available)

The silent knowledge is the most important and the success of the organisation depends on sharing it so that silent (hidden) knowledge becomes formal (available).

All employees should be involved in this process, especially managers.

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Every person has a different role in the process, but all work together to achieve the requested results.

It is explained that knowledge is created by evidencing problems to employees who will use their experiences and skills to solve them. If the problem is complex, it should be divided, simplified and employees must be mobilized to deal with it.

As explained in 1. Introduction, the Knowledge is not simply a collection of data and information, which can be stored in computer databases, but Knowledge consists also of values and emotions. Consequently, a company is considered a living organism and its employees are aware of organization's aims, responsibilities, know about its future plans and objectives which have to be hit.

Process model. It is the most recent model (2011) and according to it the knowledge management is a set of processes that enable the creation, dissemination and use of knowledge to achieve the objectives of an organization.

There are three main phases of Knowledge Management in this model:

acquisition of knowledge (knowledge creation) – development of internal employees 'skills or external subcontractors. In general, the company should use external acquisition of knowledge only when its internal resources are weak and not promising. The most desirable way is therefore the improvement of the internal employees' skills,

sharing of knowledge – the next step is to share and disseminate knowledge inside and outside the organisation.
First knowledge to be codified by giving it an appropriate form. Not only employees of the specific company should have access to it but also all stakeholders and persons interested in.

transformation of knowledge into decisions – this process requires a good motivation system for employees (promoting innovative actions) and decision-making procedures (competent persons should be involved in it).

Main elements of the knowledge management strategy in a company are People and Information Technology (IT) available: without them no knowledge management strategy would exist.

In the middle of the two above mentioned main elements seats and is supported the whole package of processes involving knowledge.

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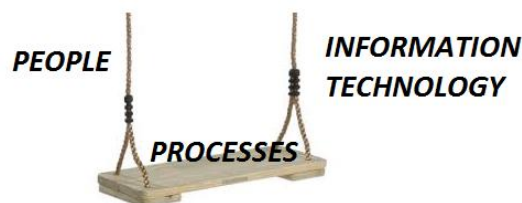
Different <u>processes</u> to be dealt with by <u>People</u> using <u>Information Technology</u> are:

Locating of knowledge – defining knowledge status, place and sources, existing activities and experiences, the role in company organisation, the level of knowledge and exploitation, benefits for the company and barriers to further progress.

Knowledge creation that consists of different phases:

- o Knowledge acquisition – collecting knowledge from internal and external channels.
- o Knowledge development
- o Analysis of extreme cases.
- o List of imperfections and discussion about it.
- o Brainstorming.
- o Group work.

Knowledge sharing – explicit knowledge sharing involves dissemination of information collected and processed, reaching out to people interested in the results of the analyses.

Sharing tacit knowledge is to transfer knowledge from one employee to other employee, using in-personal contact, as well as information technology's tools.

Implementation and the use of knowledge – knowledge is used at any time. It is important, therefore, that the knowledge should be found and used at the right time and place. The implementation of knowledge mainly depends on the personal skills of employees, like managers or owners. While implementing the knowledge, one should remember about the following:

- o Developing others' skills,
- o Building efficient teams,
- o Strategic thinking and acting,
- o Exploitation and multiplication of knowledge,
- o Improving the efficiency of results.

Preserving knowledge and its update – this consist of:

- o Selection of knowledge,
- o Knowledge storage – storage of knowledge media (e.g. printed, electronic, audiovisual products),
- o Knowledge update – nowadays the cycle of information life become shorter and shorter, so we have to update knowledge all the time,
- o Assessment of knowledge – getting to know how useful the knowledge is.

Knowledge Processes Framework

TOOLS	KNOWLEDGE PROCESSES				
	Identifying	Creating	Storing	Sharing	Applying
Audioconference	X			X	X
Blog			X	X	X
Chat			X	X	X
Community of practice	X			X	
Document Management System	X	X	X	X	X
Forum		X	X	X	X
Intranet	X	X			
Knowledge Bases			X	X	X
Knowledge pills	X			X	
Learning Management System	X	X		X	
Mind-Map		X	X	X	X
Social Network			X	X	X
Videoconference			X	X	X
Webcast		X		X	X
Webinar	X	X		X	X
Wiki		X	X	X	X

10. Web-based Knowledge Management in Gasvessel Project

"Knowledge", within the organizations, for many years (until the 90's) had been property of only few people, especially in the most conservative companies. To have the "knowledge" meant "to have the power" both towards the executives, the colleagues and subordinates.

It was quite normal that the "old" fellows used to keep documents and information secret. It was quite hard to convince them to disseminate some pieces of information even if only towards the closest collaborators. This attitude caused a lot of misunderstandings during the normal work activities.

In the industrial world, this situation, which also came from the historical and cultural heritage especially in the Mediterranean area, was even worsened by the recurrent economic crises. During recession, the lack of personnel turn-over meant no new people to whom the "knowledge" could have been passed on. Under these circumstances moreover, the people were not willing to teach or to learn.

This serious situation led to a loss of professionalism and therefore of "knowledge" but luckily it started to change when the Information Technology spread among the companies and it became easy to access to web-sites and to the tools mentioned in the previous chapters.

However, this enormous amount of available data and information must be filtered by the sensibility, the experience and the right interpretation of the users before storing, sharing and applying it.

This task is as difficult as the research of data and information whose correct usage is fundamental for achieving the results established. It is therefore important to contextualize the data and information within the company experiences and objectives in order to be in the condition "to do the right thing only once".

In this scenario, we go back to the "supremacy of the person": the one encouraged or willing to deliver, receive and use the knowledge.

The 13 partners of the GASVESSEL Consortium so far can rely on an excellent teamwork, there are no conflicts and happily there is a good collaboration spirit among all.

From the knowledge management point of view, in such an atmosphere, no problems have been noted, and the above-mentioned tools are regularly used when needed.

Tools normally used by GASVESSEL Partners are:
- Videoconference
- Audioconference
- Webinar
- Mind Map
- Document Management System
- Social Network

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Based on the aforesaid and considering that GASVESSEL Partners have a good and stabilized internal level of dissemination of knowledge, the major aspect of the Knowledge Management strategy in GASVESSEL Project must be developed and addressed to the world of stakeholders and external entities interested in CNG production, transportation and distribution and or to investors wishing to fabricate 300 bar composite pressure cylinders, more than toward the internal of the Consortium.

This Strategy and relevant action plan shall be developed in due time as soon as the first pressure cylinders prototypes are tested, and the business cases studies are ready, on completion of Costs/Benefits analysis in WP7.

11. How to Implement Web-based Knowledge Management systems in Gasvessel

In order to support the present Dissemination & Exploitation Plan, it is proposed to implement the KM Management system intended as a lever used to align business with the Project goals.

Without weighing the present managerial structure of the Consortium down, in order to give additional visibility and raising the interest in the Project, it is proposed to promote the following 3 top actions:

1. Internally to the existing organizational structure of each Partner individuate one person with a sufficiently large knowledge of the Project able to provide coordinated and shared answers to questions coming from the external industrial world relevant to people, process, technology, planning and economics.

    This person could be the representative of Lead Beneficiary of each Work Package or, in any case the representative of each Partner of the GASVESSEL Consortium. She/he should be able, using the web-based Knowledge Management tools, to activate or create the interest in GASVESSEL Project and its results, contacting or being contacted by representatives of the industrial world. In case the person will not be able to give an answer to a question, she/he shall be able, in any case, to redirect the question to the more suitable person among the Consortium and manage the answer.

2. As soon as solid results of the research activities are in hands, promote establishing a marketing Committee (could be the same Executive Board of the Consortium) responsible for planning, promoting, governing, executing and reporting all the marketing actions and knowledge dissemination, performed for the scope also using the KM web-based tools, intended to be useful to give the maximum of visibility to the Project and its objectives. The Committee shall report twice a year, to the Consortium General Assembly or, when assumed necessary, via the Project Coordinator.

3. Examine the possibility to enlarge the GASVESSEL presence on the social-networks adding, for example, You Tube to the already available links to Twitter and LinkedIn.

The above proposals for implementation actions will be submitted to the General Assembly in Trieste on early April 2019 and become operative, if approved, starting from 1st May 2019.

12. Reference Literature

- Asian Productivity Organization (APO)(2010) Knowledge Management Tools and Techniques Manual.
- Knowledge Management – Handbook for Companies – Published under EU Lifelong Learning Programme.
- Knowledge Management Implementation Plan and KM Program Governance – Create a KM Implementation Plan – by Stan Garfield – June 1, 2016