EuroVIP final report – Publishable summary

Executive summary

EuroVIP aims to co-ordinate European maritime SMEs, associations, larger companies, and research institutions to promote the application of research results and innovative technologies in SMEs, by service, technology and information (STI) transfer in terms of operational and technical collaboration.

Two sustainable means have been delivered by the EuroVIP consortium for such purpose. One is the EMCP, which is a website designed for maritime industry to collaborate based on service and technology transfer. It provides a unified search and retrieval mechanism of available innovative services and technologies, companies who provide them, and collaboration opportunities such as tender calls. Registered users can build partnership based on individual business needs and available resources and opportunities. The other supporting means is the evolved TCP, which provides an integrating environment through the provision of data and task level management and co-ordination, enabling different Computer Aided Design and Engineering (CAD/CAE) tools to be brought together and operate in a unified and holistic manner. Its new functionality, the web-based ticket system, enables automated computational services to be provided online, which is more time and cost effective when compared to the current approach.

Six case studies have been carried out to demonstrate how the EMCP and TCP benefit the European maritime sector. In the two operational level case studies, Babcock and Forkor used the EMCP published tender calls and searched potential collaboration partners which resulted in productive and effective results considering the small effort spent. HSVA and SSPA deployed the technical web-based ticket system of the TCP to provide an online computational service, which was demonstrated to be a new and innovative way for service and technology transfer. Atkins and MARIN deployed the TCP within their company to facilitate collaborative design work.

To promote the sustainable collaboration support means, in addition to project roadshows, a series of dissemination activities were organised across Europe in various maritime events, including TRA 2012, TRA2014, EuroPort, SMM, and EMD. Through these events, the number of EuroVIP participant group members increased from 11 to 107 by the end of Year 3, and the users of the EMCP increased from 30 to over 200, with over 200 registered collaboration resources, and three successful collaboration cases presenting real business opportunities.

To facilitate the operation of the EMCP and TCP for new users, best practice guides including user guide documentation, tips of using the systems, presentations, and videos have been produced guiding users through the collaboration process.

Both the EMCP and TCP are free to use within the European Maritime sector until 31st May 2015, and can be accessed and downloaded through the project website (http://euro-vip.eu/).

Summary description of the project context and the main objectives

Collaboration between SMEs through the exchange and transfer of industrial and research innovations is a key factor in achieving the competitive advantage that globalisation can bring to maritime organisations. However, achieving successful awareness of potential opportunities and effective collaboration remains a significant obstacle for European SMEs in general. Issues reported in the 2007 Observatory Survey [The Gallup Organisation, (2008). Observatory of European SMEs, European Commission] include:

- Collaboration among European SMEs tends to occur only between those SMEs who are in close geographical proximity to each other, thus preventing them from fully realising the benefits that globalisation can bring through collaborating with a broader range of partners.
- In spite of foreign business partners having a positive direct impact on employment in the home countries of European SMEs, only 5% of them have reported that they have subsidiaries or joint ventures abroad.
- Moreover, though SMEs are increasingly involved in exports, increasing in 2006 by 12% compared to 2005, SMEs in some of the largest EU countries are not significantly involved in cross-border trade.
- 35% of the SMEs reported problems in finding the necessary resources to achieve turnover.

These issues confirm that there is a clear need for European SMEs to engage more with each other and to adopt a more aggressive approach with regard to the exploitation of innovations through the development of collaboration on a grander geographical scale.

EuroVIP aims to co-ordinate European maritime SMEs, associations, larger companies, and research institutions to promote the application of research results and innovative technologies in SMEs, by service, technology and information (STI) transfer in terms of operational and technical collaboration. It will provide a viable and sustainable means for the exploitation of outputs from past, present and future projects.

Technologies with the highest potential impact will be identified and partnerships for their exploitation will be built. Best collaborative practice will be disseminated to facilitate SMEs in finding the right partnership, right innovations at the right time, and to configure and enable such partnership. Benchmark studies will be carried out to show best practice and the potential of innovation transfer to the wider maritime SME community and enhanced collaborative partnerships will be established.

The main objectives of the project include:

1. Instigate a EuroVIP core networking group to foster the establishment of dynamic partnerships among European SMEs, larger companies, and academia of varying sizes and geographical locations. (Addressed by WP2, WP3, WP4, and WP5)

   This group will:
   - Identify best practice, exploitable research and industrial innovations that will be synthesised into the partnering network. This will require consideration of the organisational relationships between these innovations in order that they can be exchanged within the SME network.
   - Explore mechanisms to ensure the partnerships are self-sustaining beyond the duration of the project and evolutionary as new STI advances and best practice appear.

2. Identify SME collaboration/partnership requirements from STI perspectives. They will clarify the requirements for building sustainable collaboration by using the supporting mechanism provided by EuroVIP. (Addressed by WP2 and WP3)
3. Develop the structure and operation of these partnerships and use the EMCP and the TCP to effectively transfer service, technology and information advances and best practice in support of these partnerships. (Addressed by WP2 and WP3)
4. Develop partnerships within the core networking group that feature significant exchange/transfer of STI advances and best practice for the purpose of improving competitive advantage. (Addressed by WP2, WP3, and WP4)
5. Support the core networking group to illustrate through at least six show-cases, that the exchange/transfer of STI advances and best practice improves their competitive position, which will be measured for example in terms of increases in (Addressed by WP5):
    - Turnover per year
    - Profitability
    - Efficiency (productivity)
6. The networking group will be extended to (Addressed by WP6):
    - Include at least 40 additional European SMEs and the establishment of augmented and new partnerships involving these new SMEs.
    - Include high levels of involvement from organisations throughout Europe and across countries at different levels of economic and technological development within these new partnerships.
    - Facilitate the creation of dynamic, real-time/ad hoc partnerships in response to specific business needs.
7. Facilitate the development of future collaborative research challenges and strategies based upon the knowledge gained both through the synthesis of existing research output and from the collaboration achieved within the project, so that partnerships will be sustained beyond the project. (Addressed by WP4, WP5, and WP6)
8. Disseminate and exploit collaboration best practice and results obtained from the project, through a series of workshops and conferences, to a wider audience. (Addressed by WP6)

In order to have a sustained engagement of SMEs into the project to facilitate technology transfer, a three stage strategy over the three years of the project is implemented.

1. Year 1: Provide support for operational and technical collaboration through the EMCP and the TCP. In this stage, project partners are the main users of the EMCP and the TCP, who provide feedback and requirements in order to make the collaboration means ready for a wider audience to use.
2. Year 2: Enable access to the EMCP and TCP for participant group (See Section B2.3) who are interested in the advanced technology transfer. A “Partnering” facility will be provided through the EMCP to guide European maritime SMEs through the collaboration process. Feedback will be collected from the group to make the EMCP, the Partnering facility, and the TCP ready to be used by the European maritime sector. The EMCP will provide access to 50% of the associations’ members to get companies and technologies registered by some external users before being made open to the public.
3. Year 3: Disseminate the EMCP, TCP, and Partnering support to the public, so that the European Maritime Sector could benefit from the collaboration mechanism provided in EuroVIP.

Description of the main S & T results/foregrounds

The main results/foregrounds of the project are: Operational collaboration model, EMCP, TCP, six case studies, and best practise guide.

1. Operational collaboration model

Operational collaboration model (as discussed in D2.2) abstracts the service and technology collaboration both within and between companies, in a variety of different configurations covering different modes of collaboration. It is supported by a database containing information about the collaborating entities and their capabilities as well as additional information necessary to facilitate efficient collaboration formation. This support is implemented within the EMCP.

Operational collaboration focuses upon the manner of business collaboration, such as providing options of collaboration type, proper potential partners and technologies, and collaboration means. The technical collaboration concentrates on the technical enabling, realisation and support of service and technology transfer. Four different levels of collaboration were identified which reflect different degrees of engagement of technical and operational collaboration. The first level has no technical integration and uses a secure area in the EMCP for data exchange and negotiation to support operational collaboration only. The second level has a limited use of the TCP and file transfer and uses a secure area within the EMCP for data exchange and communication. The third level provides a higher level of control over the TCP process, with users exchanging data through the TCP, and using the EMCP for limited basic communication. The last level exploits all of the functionality of the TCP and uses the EMCP for search.

The operational collaboration model is composed of a number of elements which interact in different ways in response to the different level of collaboration. The elements include database forming, searching, trust building, communication, technical collaboration integration, service collaboration, and technology collaboration. In addition, two modes of collaboration, top-down and bottom-up collaboration, formed the basis for the case studies conducted in the project. The top-down mode involves companies with existing technical collaboration projects, who require service providers to perform particular design or analysis activities in areas where they lack the expertise, where the service providers would utilise the TCP to integrate such activities. In the bottom-up mode, companies already using the TCP within collaboration projects, would additionally use the EMCP to search for resource and alternative service suppliers.

2. European Maritime Collaboration Portal

The EMCP (http://portal.euro-vip.eu) was developed in order to provide a sustainable tool as a central access point for European maritime users to collaborate at an operational level based on service and technology. The operational collaboration model was implemented within the EMCP, and registered users can build collaborative partnerships based on individual business needs and available resources and opportunities. The EMCP has been open for public access since June 2013.

The EMCP was developed using Drupal, an open source content management platform. It is used as the back-end framework for the EMCP. The backend of the EMCP is built using a repository provided by Drupal that stores information such as registered users, collaboration resources, communications, and other required content for collaboration. At the front end, the EMCP has a simple and intuitive

user interface to facilitate users to register, submit content, contact potential partners and create new collaborations.

The main functionalities of the EMCP are listed below, and further detail can be found in D2.6-2.8, and D4.2-4.4.

Registration

- Register user account

Any user from European maritime sector can register in the EMCP. Without registration, users are still able to access and explore collaboration resources and opportunities, but are not able to add content and contact technology or service providers. In addition, only registered users are able to register for events.

When registering, users would need to provide basic information such as username, password, company information, and email contact. All users will be valid only after the user confirmed their registration by email.

Submit new content

- Register technology entry
- Register service entry
- Register project entry
- Register company entry
- Publish call for collaboration

Registered users are able to submit collaboration resources such as technologies, services, projects, companies, or calls for collaboration. A call for collaboration enables a company's business needs be communicated across the European maritime industry and represents a real business opportunity in the market. It is the quickest way to start business collaboration.

Find collaboration resources:

- Search for technology
- Search for service
- Search for project
- Search for organisation

The search facility allows users to find the required resources in the EMCP repository while also focussing on collaboration amongst the participants. Different approaches, such as alphabetical search, key word search, search based on categories, and field search, have been provided at various places of the EMCP to enable users to find the information that they need.

The alphabetical directory is a flexible search method which produces lists of both organisations and the services/technologies presented alphabetically. In addition, users can search by key words for all resources, can filter resources using different criteria such as resource category or located country, and can sort the search results by criteria such as post-date or title.

Explore collaboration opportunities

- Search for tender call

- Find collaboration partners
- Contact potential partners

Users are able to explore collaboration opportunities by search for tender calls, find collaboration partners, and start the communication with potential partners online. The EMCP provides flexible communication engagement for partners to collaborate. Once an opportunity has been identified, the companies involved can either communicate online through the EMCP, or start sending emails following initial online communication if there is any confidential information involved.

Start or resume collaboration

- Start/resume organisation collaboration
- Start/resume technology and service collaboration
- Form a networking group

Once a collaboration opportunity has been identified, registered users are able to start communication and collaboration with other service and technology providers. The collaboration can be marked as complete once it's done and can also be resumed if further work is needed.

The EMCP also provides a networking group function so that users that have the same interests can share articles, discussions, and news. A group can be set as private if the group owner only wants invited people to join.

3. Technical Collaboration Platform

The TCP is an integration environment for the provision of data and task level management and co-ordination enabling different Computer Aided Design and Engineering (CAD/CAE) tools, to be brought together and operated in a unified and holistic manner. The TCP was developed and evolved during the VRShips-ROPAX, VIRTUE, and SAFEDOR projects to enhance collaboration between geographically distributed maritime and marine organisations. It represents a state-of-the-art vehicle for the co-ordinated actions and exchange/transfer of service, technology and information advances within the partners in the network. The TCP has been successfully implemented within VIRTUE and has resulted in significant business performance improvements. In EuroVIP, the TCP formed the backbone for technology transfer on the technical level. To support technology transfer as well as complex collaboration, the TCP has been enhanced with respect to process/network management, transform configuration, and process execution based on users' requirements. Though not foreseen before the EuroVIP project started, a major development was requested by partners in Year 3 to provide a web-based ticket system for computational service providers to enhance their service provision capability as well as promote technology transfer for these companies. The enhanced features and the new web-based ticket system function have been proved to be beneficial for both internal collaboration and external service provision through the case studies.

3.1 TCP Ticket System

The TCP is able to facilitate company internal and external collaboration when distributed people are contributing to different parts of a design process/network. In order to facilitate technology transfer through service provision, a separate system was needed to enable end users to send the service request and for the service provider to return service results. Based on the requirements for such functionality, a ticket system TCP external client was released in Year 2 for service providers to

provide this remote service. However, this approach required all external clients to install part of the TCP software (a reduced-functionality client). Following an initial study, it was found that in addition to the installation demands, the ticket system client required changes to firewall settings to allow port 7280 communication for the TCP DB server, and also port 22 (or customised port) for secure FTP access.

In order to overcome the above issues, an alternative solution, web-based ticket system, was proposed, which can be widely and easily deployed and accessed. The web-based ticket system requires the service provider to install and configure a web server and SQL express database server, however this only needs to be done once. After it is installed and configured, no further work on the server side is needed. The advantages that the web-based system can bring to users are:

- Easier access for end users: End users could access the service from any computer that has internet access.
- Secure access: End users access web server through standard port (80), or customised port. The web server does not store confidential data.
- Firewall configuration: Customers do no need to change firewall setting to access TCP and FTP servers.

Following a comparison of the two solutions, a decision was made to develop the web-based ticket system for service providers to promote computational technology transfer amongst SMEs. The web-based ticket system includes TCP database server, TCP agent, Web server and SQL express database server. The service provider would need a web server to run SQL express database, which stores user account and ticket information. End users will access the service through a web browser such as IE or Chrome.

The service providers' project can be differentiated from other internal only projects that are built for internal collaboration. External users need to register user accounts and contact the service providers to buy tickets. A service request can be sent once external users have an adequate number of tickets for the service. Upon selecting the service, the external user will be directed to the next step to provide the required project input data, such as ship geometry for example. When the service provider's servers receive the request, it will trigger the execution of the TCP to automatically execute the design and analysis tools that have been integrated, and the results will be ready for end users to download upon completion. At the same time, the ticket will also be deduced from the end user's account, and they will be informed on completion of the service, and can start to download results when they become available.

The web-based ticket system has been regarded as a significant unforeseen achievement of the project, as it has demonstrated that it provides a new business model for computational service providers. In general, SMEs have limited resources, with which to create, develop and promote their software and services. Compare to the current routine way of software distribution, the advantage of using the system for the service provider is three-fold. Firstly, the end users may start testing the software immediately, with no need to install or configure any software. This bypasses some of the tedious overhead that often accompanies installation of new software, expediting the software testing. Secondly, the costs involved with current software test licensing can be greatly reduced by avoiding shipping an expensive security dongle to potential customers. The web-based ticket system

eliminates both of these obstacles, providing a cheaper and faster demonstration platform for the computational service providers. Lastly, once the system in running, it potentially provides a more continuous revenue stream to the service provider.

3.2 TCP network

To enable users to construct more complex collaboration, the process management (known as dependency networks) within the TCP has been enhanced from single level to multiple levels using sub-network nodes based on user requirements. In a sub-network node, another network can be built and there are connections between the sub-network and the parent network, which can be file or parameter based. The sub-network function enables users to create flexible networks based on their specific needs and a process with sub-networks can be executed automatically.

All created networks are saved in the TCP and can be edited anytime. When creating a new network, previous defined networks can be imported. This new feature greatly reduced time for users to create network when existing networks can be reused.

3.3 TCP transform

Transforms are used within the TCP to insert or extract parameter data from a file. In addition to the previous available transforms based on anchor and line indicator, two new types of transforms were added to the TCP.

A user can now replace the same text at multiple places in a file with the contents of a string parameter. Another new type of transform is that all text in one line could be replaced by a string parameter. Both transforms have been requested by the TCP users and reflect engineers' end needs.

In addition to the two new transforms, if a user configured similar transform in other projects for other network, the transform can be imported automatically during project creation process, i.e., if there are transforms available, they will be imported automatically. They can also be imported manually after a project has been created and configured.

3.4 Conditional loop

If a user would like to repeat a specific part of a process automatically if a parameter value at the end of the process does not meet the criteria, the goal node can now be used to create a conditional loop in the process. After a goal node with conditional loop created, during the project execution process, if the value of the parameter does not meet the goal (specific value criteria), then the TCP will repeat the process from the beginning of the loop. If the goal is met, the project will continue to the remaining part of the process.

4. Case studies

Six case studies have been carried out to demonstrate how the EMCP and TCP can benefit the European maritime sector. In the two operational level case studies, Babcock and Forkor used the EMCP published tender calls, searched potential collaboration partners, and conducted company-company technology transfer and collaboration. The cases resulted in productive and effective results considering the small effort spent. HSVA and SSPA deployed the technical web-based ticket system of the TCP to provide an online computational service, which demonstrated to be a new innovative way for service and technology transfer. Atkins and MARIN deployed the TCP within their company to facilitate collaborative design work to support company internal collaboration. The case

studies demonstrated the functions of the EMCP as an effective dissemination media for EuroVIP with specific attention to maritime applications. Five case studies were demonstrated in the project GA and final conference, which can be found online http://portal.euro-vip.eu/?q=eurovip-final-conference-22nd-may-2014 .

Case 1 – operational collaboration, top-down approach

In the first operational case, BABCOCK looked for European-based service providers as an alternative to the non-European based services currently employed, in order to investigate the effectiveness of the EMCP as an alternative to usual supplier selection methods. This was achieved through the identification of a current Babcock commercial project which required the outsourcing of the electrical integration and powering of the instruments and communication devices for a specialist offshore buoy. Both the business directory search and the call for collaboration functions were tested and resulted in the identification of potential suppliers. The EMCP was successful in achieving the correct correlation between customer needs and supplier service provision. Moreover, it achieved this correlation in a relatively short time and with minimal input from the customer. It requires more registered collaboration resources to enable both the business directory search function and call for collaboration function to operate effectively. It can therefore, at present, only be considered as, an assistant, rather than a full alternative, to usual collaboration methods.

Case 2 – operational collaboration, top-down approach

A Polish ship yard and SME, FORKOR, searched for new technologies through EMCP in the second operational case, to find new analysis tools or services to complement its design capabilities. The exploitation of the EMCP enabled FORKOR to find partners for collaboration in transferring some new technologies in the domain of innovative structures of inland barges including numerical analysis of strength and optimisation of the barge hulls. Undertaking such kind of collaboration may be judged as an efficient way to develop an attractive offer by FORKOR, assuring the economically effective exploitation in inland transportation systems. In the company's opinion, the EMCP can be a very useful tool for supporting them in the search for innovative technologies in particular where personal contacts between the employees of small businesses are not sufficient in this regard.

Case 3 – technical collaboration, bottom-up approach

In SSPA's technical case, the company implemented the web-based ticket system, and deployed SHIPFLOW analysis process through the TCP. SSPA's customers could submit computational requests online and the request would be executed automatically without human involvement. The system allowed external users to execute SHIPFLOW using only a web interface with little or no knowledge of CFD, and computational technology could be used by SMEs in an innovative and easy way. The system is flexible and easy to use, and it could easily offer more complex solutions for customers with more parameters or direct access to command files. The billing is regulated over a ticketing system and the system provided the company a new way of providing an automated computational service. The case was demonstrated in the EuroVIP final conference in London on 22nd May 2014.

Case 4 – technical collaboration, internal collaboration

MARIN's multi-disciplinary analysis of a new ship hull design, as implemented in the VIRTUE project, was transferred to the TCP. It turned out to be difficult to get the complex process fully operational

in the new TCP. The final version of the TCP was capable of managing the process over multiple computers within MARIN. However, connecting the process to external users and their TCP installations could not be tested anymore. More development and testing is needed after the end of the project.

Case 5 – operational and technical collaboration, bottom-up approach

Within the HSVA case a ship resistance analysis tool was provided by HSVA for free use through the EMCP and the web-based ticket system of the TCP. Normally, this software is licensed for a fee, and uses a hardware lock to enforce the licensing. A fully-functioning test version is available, but since the hardware locks are expensive and must be sent through the mail, this process has some costs attached. To facilitate the technology transfer, the web-based ticket system relieves some of these costs and expedites the demonstration process, which resulted in a new business model for computational software developers and technology/service providers.

Case 6 – operational and technical collaboration, bottom-up approach

Atkins' focus for participation within the EuroVIP project was developing their processes around the concept of Front End Engineering Design (FEED) and used a floating system design and analyses in the case study. This development broadened the applicability of the project to consider different types of collaboration that was required during this design process. Work progressed using a mix of tools from in-house MS-Excel based sizing and MTO sheets, to the DNV suite, including Sesam, the AQWA suite, and Inventor 3D CAD system, as well as CFD. The design process of the floating system was implemented in the TCP, which facilitated internal collaboration among the team. Following the design, an evaluation was conducted and results indicated that the participants believed that the TCP improved the processes within a design environment. Though Atkins is a large enterprise, the work carried out in the team could be transferred across to SMEs to improve these internal processes and their potential to collaborate, both with other smaller businesses, associations, larger companies, and research institutions to promote the application of innovations, such as research results and new technologies. To analyse the design by an external provider, a call for collaboration was published in the EMCP, and nine tenders were received as the result of the EMCP dissemination. The tenders have been evaluated in order to undertake further analysis work.

5. Best practise guide

To facilitate maritime users to conduct collaboration, knowledge transfer, and dynamic partnering by using the facilities provided by EuroVIP, the best practice guide for collaboration has been developed. The guide includes not only how to use the collaboration means provided in EuroVIP, including the EMCP, TCP, and the Web-based Ticket System, to facilitate technology transfer, but also experiential knowledge for best partnering.

The best practise guide can help not only the first time users of the EMCP and the TCP, but also returned users. The best practise guide could be downloaded from the EuroVIP website.

Impact dissemination exploitation

1. Potential impact

Impact to European maritime sector

The EuroVIP project has provided sustainable support for maritime industry specific needs for collaboration, by providing the EMCP and the TCP as sustainable means to support maritime collaboration based on service and technology transfer.

The EMCP is a unique collaboration tool for European maritime industry, and was described by users within this industry as being intuitive, flexible and effective in identifying potential collaboration partners. The enhanced TCP brought a new business model to European Maritime computational service providers as the web-based ticket system has been proved to be cost and time effective for both service providers and users. The impact of the EMCP and TCP has been demonstrated through six case studies carried out in the project, and it is expected that they will continually benefit maritime sector beyond the EuroVIP project.

23 dissemination activities (see 2. Dissemination activities) were held during the project, targeted at the European maritime sector. The awareness of the EMCP within the European Maritime Industry and collaboration opportunities has been increased and users of the EMCP has increased to over 200 by the end of the project. It is expected such awareness will make the EMCP and TCP continuously to be used by maritime users. Best practise of collaboration has been produced during the project and placed online, which will facilitate both existing and new users to use the EMCP and the TCP to best suit their individual requirements for enhanced collaboration.

The EMCP will be a central place for identifying services and technologies with highest impact for collaboration, and successful collaboration can increase an organisation's capabilities and ultimately enable it be more competitive in the global marketplace.

From Aug 2014, the EMCP has been started to be used by another EU project, STAMAR, as the tool to facilitate identifying Best Available ICT-intensive technologies. The current functionality of the EMCP was used for tracing the best available technologies applicable to maritime ICT industries. Though the collaboration resources registered in the portal is still limited, from this initial application, it is expected that the EMCP will be used by more projects in the future.

Impact to SMEs

Of the 148 participant group members of the EuroVIP, 78% are SMEs from 19 countries.

Within the EuroVIP project, it was identified that SMEs need more channels and a more aggressive way to disseminate their services and technologies. Very often they would like to collaborate with large enterprises to provide their services and technologies. However, large enterprises normally have routine suppliers and it is extremely difficult for SMEs to step into the routine supplier chain.

The EMCP has offered opportunities for SMEs to expose themselves and find business. The call for collaboration section enables users to publish any requirements. Through the case study conducted by Babcock who published a call for collaboration in the EMCP, it was found that 60% of the tenders they received were not aware by the company before. By using the routine approach, the company would only approach suppliers known to them. The case study demonstrated that the EMCP allows

SMEs new to the market, to expose themselves to large companies with low costs (effort of submitting a tender).

The TCP is also being offered as free collaboration software for SMEs who conduct collaborative design and analysis work. The TCP was already able to facilitate design and analysis with significant business performance improvement in terms of time and cost saving (60% of process time saving from VIRTUE project). The enhanced TCP enables company build and configure project and process more efficiently. The time can be saved for new projects depends on an individual project, but on average, the network reuse and transform import function can introduce up to 50% time savings for new project creation and configuration. The web-based ticket system has offered a free solution for SMEs to provide computational service with a faster speed and reduced cost. In addition, it also allows users to send the request and execute service with little or no knowledge of computational technology, which could be transferred to SMEs in an innovative and easy way.

2. Dissemination activities

From the beginning of the project, the EuroVIP project ran a series of dissemination activities to promote the sustainable means for collaboration to a wider range of European maritime community, including websites, newsletters, advertisements, roadshow visits and public events, presentations in workshops, and articles in trade magazines.

Websites

The EuroVIP website was set up at the beginning of the project (www.euro-vip.eu), and has been updated and maintained since then either in its structure or content.

In Feb 2013, the website structure was changed to integrate the functionalities of the EMCP into the EuroVIP website. The “Participate”, “Explore”, “View”, “Submit”, and “Collaborate” functionality was added to the website menu so that visitors could be redirected to different areas of the EMCP. A widget for the EMCP was also created to guide users to different functionalities. A paper boat design was created for the project, a project promotional video was produced and embedded in the front page, and both the project exploitables, EMCP and TCP, were added to the front page. In addition to the structure change, updated news and events were been published in the website.

Project partners, such as AIN, DM, GESAD, KSTP, and SMI have added descriptions and links of the EuroVIP project to their company websites.

Newsletters

Regular newsletters were distributed to project partners and the participant group of the latest news, events, and updates of the project. Some of the news and events information, such as SMM, EuroPort, Final conference, were additionally disseminated to associations’ members through their newsletters.

SMI has actively disseminated the project through members’ newsletter January, February, December 2013 and February, March, April 2014 in line with web portal improvements and usability.

Advertisements

Online advertisement: a banner was placed on Ship Building website for three months from Oct to Dec 2013.

A EuroVIP web banner with dynamic information update was placed in ShipBuilding Industry website for three months. A half page advertisement of the project was placed in ShipBuilding magazine Vol.7 No.5, which was distributed widely during the EuroPort event in Istanbul. In addition, a one page description of the EuroVIP project was listed in the Maritime Directory 2015 that will be distributed in big events such as SMM 2014 in Hamburg.

A Google ad campaign was also used from June 2013 until Feb 2014 by using key words such as maritime technology, maritime service, and maritime collaboration.

Roadshows and public events

Roadshows and public events have been planned from the very beginning of the project. Three roadshows were held in the first year where maritime industries were invited for the events. 11 participant group members joined the project through the initial three roadshows. Through the events, it was learned that the dissemination would have been more effective when the collaboration supporting means were more tangible. In addition, organising roadshows in locations where there was no contact appeared to be more difficult in the later stage of the project. Therefore, local events across Europe were targeted to facilitate the population of the EMCP and to encourage the correct utilisation of the portal for collaboration. In total, 23 roadshow workshops and public events were organised and attended across Europe during the project in Task 4.5 and Task 6.2. The number of EuroVIP participant group members increased to 107 by the end of Year 3 (the original target was 40). 83 of them are SMEs from 17 countries. 90 members have registered either their organisation, or service, technology in the EMCP.

1. Copenhagen, Denmark, roadshow workshop: The first roadshow was held in Copenhagen on 18th August 2011, with two companies, MAN Diesel & Turbo and Alfa Laval Aalborg, in attendance.
2. Lisbon, Portugal, roadshow workshop: The second roadshow workshop was held in Lisbon on 18th November 2011, with eight companies, Arsenal do Alfeite, ENVC, EUROSHIDE, LISNAVE, NAVALRIA, OneOcean, RINAVE, and Tecnoveritas, in attendance.
3. Following the November workshop, another three roadshow workshops in Portugal were organised in Arsenal do Alfeite, LISNAVE, and OneOcean from 9th to 13th January 2012 to promote the collaboration support in EuroVIP.
4. London, United Kingdom, roadshow workshop: The first UK EuroVIP roadshow workshop was held in London on 17th April 2012, with four companies, Babcock International Group, BMT Isis, F.L Patents, and Today Translations, in attendance.
5. A special session of EuroVIP in TRA 2012: A special session of “European maritime collaboration through exchange of service, technology and information” was held in the Transport Research Arena (TRA) 2012 conference, on 26th April in Athens. Four presentations were given by University of Strathclyde and SMI during the special session.
6. A EuroVIP presentation was given in the Euromaritime event in Paris to BESST project partners on 5th Feb 2013.
7. On 20th March 2013, a seminar was held in EuroPort Exhibition in Istanbul Turkey, two presentations on the EuroVIP project and enhancing collaboration with EMCP were given. Nearly 40 audiences attended the workshop and they are consisted predominantly of the shipyards and technology/service providers.

8. EuroVIP was disseminated during the SMI annual conference on 9-10th April 2013 in Southampton, UK. Project posters were displayed and delegates were informed of the project.
9. The project was exhibited by AIN in Forum do Mar in Portugal from 29-30 May 2013. A presentation was made by AIN on the aims of the project, the general principals and the software created for the technical collaboration platform.
10. A presentation "Enhancing European maritime collaboration through exchange of service, technology and information" was given in MarTech LNG project's STUDY VISIT TO STAVANGER, NORWAY TO EXPLORE LNG event on 18th Sep 2013. Over 60 participants from six countries attended the event.
11. On 24th Oct 2013, UoS gave a presentation about "Web Based Virtual Integration" in the Virtual Ship Advisory Group Meeting 14 in Barrow, UK. 22 participants from UK maritime sector attended the meeting.
12. UoS attended the Europort Exhibition in Rotterdam, Netherlands, on 6th November 2013. UoS exhibited the poster and the flyers at the GESAD stand and visited other stands distributing the EuroVIP leaflets and informing companies about the project and options it could give them.
13. EuroVIP was disseminated in TransPoland - Warsaw International Transport and Logistic Exhibition under the auspices of Ministry of Transport, Construction and Maritime Economy and Conference on Baltic Adriatic Corridor prospects on 26-28th November 2013. Up to 30 companies were informed about the EuroVIP project.
14. AIN attended the TIPS training academy in France on 4-5th Feb 2014, and disseminated the EuroVIP project during the event to TIPS partners, which is a support action funded by the EC to enhance the capacity of EU transport projects to transform research results into innovative products and services.
15. EuroVIP was exhibited in SMM in Istanbul, Turkey from 26-27th Feb 2014. An exhibition area was dedicated to EuroVIP facilitated by GESAD, and leaflets were distributed to visitors. Other stands were also visited to distribute the EuroVIP leaflets and informing the suitable companies about the project and options it could give them.
16. EuroVIP was exhibited in Oceanology International 2014 in London from 11-13th March 2014. OI is the world's largest exhibition showcasing marine science and ocean technology solutions. 528 international exhibitors joined the OI 2014. A workshop with two presentations was given on 13th March, and over 170 leaflets were distributed to visitors and exhibitors from Europe.
17. HSVA attended Throughlife final workshop at Meyer Werft in Papenburg on 26th March 2014. A presentation of "Enhancing European maritime collaboration - EuroVIP approach" was given during the workshop.
18. A EuroVIP seminar was held in AUTOMATION Fairs in Warsaw, Poland on 27th March 2014. Both EMCP and TCP were presented with approximately 30 delegates attending the workshop.
19. UoS attended TRA 2014 in Paris and presented a poster "Enhancing Competitive Advantage for European Maritime Sector" in the Outreach Marketplace section on 15th April 2014. 60 project leaflets were distributed to attendees.

20. EuroVIP was exhibited during the European Maritime Day from 19-20th May 2014 in Bremen. During the two day's exhibition, over 100 people visited the booth and project leaflets were distributed during the event.
21. Following the EMD, EuroVIP sponsored and exhibited in the Royal Institution of Naval Architects' Design and Operation of Container Ship conference in London from 21-22nd May 2014. The project was disseminated to over 30 attendees.
22. During the International Shipbuilding Exhibition of Vigo event in Spain from 20-22nd May 2014, AGPYME held a seminar on EuroVIP and presented the project to 40 companies. In addition, 350 leaflets were distributed over the three days of exhibition.
23. One day dissemination seminar on EuroViP results, including the EMCP and the TCP, was organised in Szczecin by ZUT on 29th May 2014. Four presentations have been performed and long discussion provoked. 29 participants were present including Polish SME of maritime sector.

Email, phone call activities to service and technology providers

Detailed analysis was undertaken of technologies adopted through EU projects using data from TRIP database (http://www.transport-research.info/web/), Marpos database (http://www.marpos-project.net/) and European Commission web sites (http://cordis.europa.eu/fetch?CALLER=FP7_TRANSPORT_PROJ_EN). Technology information was split by country to enable partners in each country to make contact with relevant technology providers to get the technologies registered in the EMCP. Phone calls were made and emails were sent to companies who provide service and technology by the consortium in order to grow EMCP users.

Articles in trade magazines

Two articles were published in trade magazines:

SMI published "European maritime collaboration through exchange of service, technology and information" featured EuroVIP project in their 2012 annual review, pp 43 – 44. The magazine was distributed to their members and their exhibitions in all public events.

GESAD published "Enhance maritime collaboration through service and technology exchange", in their Ship Industry Magazine, Issue 39, Feb-Mar 2014, pp 32 – 37. The magazine was distributed to their members and their exhibitions in all public events.

Dissemination materials

To facilitate the above dissemination events, a number of materials were produced:

Project leaflets: Following the availability of the EMCP, the project leaflet was updated in Nov 2013 to show more explicitly what is being offered in the project. The leaflets has the project summary and short instruction of the EMCP and the TCP, and how they can benefit European maritime users.

Posters: Posters of project, EMCP, and TCP were produced for use in the roadshows and other dissemination events. The posters include introduction of the project, what is being offered to European maritime industry, and four case studies that have been conducted in the project.

Project videos: A project promotional video and an EMCP promotional video were produced and were placed in both Youtube and project website.

USB drive: 600 USB drives were produced and were distributed to the maritime industry in the roadshow events and also to project partners so that each partner can distribute them through their network.

3. Exploitation

Within the EuroVIP project, two exploitables were identified. One is the EMCP, which provides a unified search and retrieval mechanism of available resources (innovative service and technologies), and configuration of partnership. The other is the TCP which provides an integrating environment through the provision of data and task level management and co-ordination enabling different Computer Aided Design and Engineering (CAD/CAE) tools, to be brought together and operate in a unified and holistic manner. The new web-based ticket system functionality of the TCP, enables automated computational services to be provided online, saving time and cost compared to the current approach.

Following market research, customer analysis, and series questionnaires and discussion with project partners, the following exploitation plan has been decided for the EMCP and TCP.

EMCP exploitation plan

Current exploitation plan: Annual rate: Free for all users

The EMCP will remain to be free for all users to use all the functionalities until a critical number is achieved.

Currently there are over 200 EMCP users, registered from 90 organisations. Considering this is still relatively small, in order to attract more users and traffic to the website, it was decided to maintain the EMCP to industry free of charge. However, if a user would like to promote any information by having a visual enhanced profile, or want to advertise in the front page, the fee is €30 per month for both types of users.

Access company/service/technology/project	Free
Submit company/service/technology/project	Free
Obtaining direct contact of partners	Free
Contact service/technology provider	Free
Collaboration management	Free
Advanced search option	Free
Groups	Free
Forums	Free
Submit and browse calls/tenders	Free
Apply for calls/tenders	Free
Upload case studies (self-promotion)	Free
Access case studies	Free
Visual enhanced profile	€30/month
Front page advertisement	€30/month

Future exploitation plan: Basic and Premium membership

When the number of the EMCP users reaches 400, which is considered by the consortium a critical momentum base, two types of memberships will be implemented: Basic and Premium. While both can access the basic functions of the portal, basic users are prevented from submitting collaboration resources such as service or technology. They could view all the calls for collaboration, but are not able to submit tenders for online collaboration calls. Though premium users need to pay €100 per year, it's free for them to submit collaboration resources to promote companies and submit tenders to answer online collaboration calls. If a basic user would like to submit a tender or access a case study, a fee of €30/tender and €30/case will need to be charged.

In addition, both types of users can promote their company, service, and technology through front page advertisement, visual banners, or highlight feature with a small amount of extra charge (€30 per month).

TCP exploitation plan

Various TCP exploitation plans were proposed during the project and discussed during General Assembly meetings and Steering Group meetings.

The TCP is a ready to use integration platform, with the new function ticket system and a number of improvements during the EuroVIP project, it provides an affordable product for SMEs, considering that the marketing price of commercially similar products can reach hundreds of thousands of euros.

A license fee of €6000 has been proposed at the beginning of the exploitation making. However, it was considered the price is too high for SMEs. Though the University of Strathclyde intended to continuously develop, maintain and provide customer service, the TCP end users' opinion was to provide it as open source software and free to download online. However, income can be collected through the following means:

- TCP ticket system commission fee: Commission fee can be charged from the ticket system users who provide computational service to their customers which brings income to the system users. A percentage of the income will be charged as commission fee.
- Training service: UoS could provide training services to exploit more advanced features for TCP users.
- Call service: If TCP users have question, they could call UoS to get technical support, and a fee could be charged by the length of the call.

Following the final discussion with partners in the final conference, it was decided that instead of providing it as open source, the **TCP will be free software**. It will be online and anyone can download it.

Training service: If there is any training request, the daily training cost will be €600 based in Glasgow.

Ticket system commission fee: The ticket system is free to use for the first year. From the second year if the income is higher than €50,000, then commission fee will be charged with 10% rate.