Intuitive operation and pilot training when using marine azimuthing control devices



Report Title:

Deliverable 2.9:
Publication of Dedicated Project
Journal

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Executive Summary:

The aim of this task is to implement project dissemination through the creation and publication of a dedicated project "Journal of Marine Simulation". The target market will be evaluated and a suitable niche identified. Specifically, it is expected that the shortcomings in existing publications should be identified and addressed. Through discussion between partners the scope and format of the proposed journal will be agreed. Suitable media will be identified to promote the journal to both contributing authors and the target audience. All project partners will be encouraged to contribute papers and, at a minimum, each WP will be required to submit one paper. Finally, the project partners will be invited to for an on-going review committee to continue the work. The main objectives are to:

- 1. Survey target market and competition (readers, authors, growth potential)
- 2. Establish journal format, aims, scope and rationale.
- 3. Promote prospective journal in public press.
- 4. Each WP to produce at least one contributes paper for first edition.
- 5. Project partners to form foundations of on-going reviewing committee

The task will culminate in the publication of the first edition of the project journal which will include a minimum of four technical papers; one from each technical WP. In addition, the task will establish the foundations for on-going publication. The successful completion of these activities constitutes one project deliverable.

When considering whether to enter the competitive market of academic publishing, it is imperative that as well thought out business case be presented for scrutiny, to ensure that the most appropriate method of exploitation of the available scientific data is chosen, and that the decision to publish at all has been made on sound financial grounds. Publication of any peer-reviewed literature is time consuming, and can be prohibitively expensive, but if approached correctly is an unparalleled outlet for quality research to reach its intended audience.

This report looks at the market in which any publication produced by the AZIPILOT Consortium partners would operate, and considers the most appropriate use of personnel time and effort, money, and the most valuable resource of all: research outputs. Implicit within the decision of how to publish, and where, are several questions hinging on the ability of different methods of distribution and publication to reach the broadest possible sphere of interested consumer, and the varied attributes of these available channels to deliver the optimum result for the Project, and the wider community interested in the hydrodynamic modelling, testing, simulation, training and practice associated with ship propulsion in general, and that of ships with the added complication of azimuthing drives in particular.

This report briefly considers the background to the AZIPILOT Project, and what this brings to the debate regarding a suitable outlet for the dissemination of outputs; analyses the market in which the Journal or otherwise will be required to compete for market share; and generates a publication format aims, scope, and rationale designed to best meet the needs of the identified market gap.

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Task Outline:

The task outline is taken from Annex 1 – Description of Work (AZIPILOT, 2007:p38):

Task 2.9: Publication of Dedicated Project Journal

The aim of this task is to implement project dissemination through the creation and publication of a dedicated project "Journal of Marine Simulation". The target market will be evaluated and a suitable niche identified. Specifically, it is expected that the shortcomings in existing publications should be identified and addressed. Through discussion between partners the scope and format of the proposed journal will be agreed. Suitable media will be identified to promote the journal to both contributing authors and the target audience. All project partners will be encouraged to contribute papers and, at a minimum, each WP will be required to submit one paper. Finally, the project partners will be invited to for an on-going review committee to continue the work. The main objectives are to:

- 6. Survey target market and competition (readers, authors, growth potential)
- 7. Establish journal format, aims, scope and rationale.
- 8. Promote prospective journal in public press.
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The task will culminate in the publication of the first edition of the project journal which will include a minimum of four technical papers; one from each technical WP. In addition, the task will establish the foundations for on-going publication. The successful completion of these activities constitutes one project deliverable.

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1. Introduction

When considering whether to enter the competitive market of academic publishing, it is imperative that as well thought out business case be presented for scrutiny, to ensure that the most appropriate method of exploitation of the available scientific data is chosen, and that the decision to publish at all has been made on sound financial grounds. Publication of any peer-reviewed literature is time consuming, and can be prohibitively expensive, but if approached correctly is an unparalleled outlet for quality research to reach its intended audience.

This report looks at the market in which any publication produced by the AZIPILOT Consortium partners would operate, and considers the most appropriate use of personnel time and effort, money, and the most valuable resource of all: research outputs. Implicit within the decision of how to publish, and where, are several questions hinging on the ability of different methods of distribution and publication to reach the broadest possible sphere of interested consumer, and the varied attributes of these available channels to deliver the optimum result for the Project, and the wider community interested in the hydrodynamic modelling, testing, simulation, training and practice associated with ship propulsion in general, and that of ships with the added complication of azimuthing drives in particular.

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As stated in Annex 1, the aims of AZIPILOT can be summed up as:

"From the thrusters on smaller, but numerous, harbour support vessels through to the pod-drives on cruise ships and ocean going liners, azimuthing control has rapidly established itself in the maritime industry. While the industry has risen to meet the demand, this rapid evolution has not allowed sufficient time for the propagation of knowledge throughout the different disciplines. Though the various sectors of the industry each have their own expertise, a lack of communication is both restricting progress and compromising safety – in addition, much work is being repeated unnecessarily." (AZIPILOT, 2007:p8)

The publication of academic work currently exists in several forms: academic journals or professional magazines published at stated intervals, for example monthly, quarterly or annually; a record of the transactions of a society e.g. RINA Transactions; online journals, e-newsletters; ad-hoc published bulletins, as and when there is something of note to publish, or special editions (for the same reason). A large enough body of work in one area of expertise or within a discipline, may warrant the publication of a dedicated book, or an informative website, acting as a knowledge hub or portal, may be considered to be the most appropriate method of publication. The language(s) used in publication must also be taken into consideration, as must the likely reach of any publication avenue.

Any form of regulated and actively distributed information, such as a paper-based journal, then opens up a whole range of secondary considerations, such as the frequency of publication so as to ensure supply and demand are optimally balanced without unnecessarily delaying the disclosure of new scientific research to the public.

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The aim of this task was to identify the most appropriate medium for a publication that would promote wider understanding across the industry, leading to harmonisation of practice and providing recommendations for both policy making and the pilot training process and practice; specifically for ships that use azimuthing manoeuvring devices. The project provides a forum for cross-disciplinary discussion between the key industry sectors, specifically: Hydrodynamic Modelling, Marine Simulation, Maritime Training and Operational Practice.

The primary aim of this task however, remains to ensure the greatest impact for the AZIPILOT project, by delivering optimum exploitation of the Project's results, and hence maximum dissemination of the outputs. Whilst this task is also specifically considering the case for a dedicated project journal, this must always be within the context of delivering maximum impact of the project as a whole.

1.1. Background

The publication(s) to be generated as an assessed outcome of this Project (part of this Deliverable) should approach the research needs as identified by the Project Proposal, and set out in Annex 1 of the Grant Agreement, namely:

"The aim of the project is to identify the need for, and identify roots to, new technologies and to propose innovative solutions for the improvement of safety and security of ships that use azimuthing control devices. It is intended that this should ultimately lead to the protection of vulnerable people, materials and the environment. The project encompasses the entire infrastructure of numerical modelling, simulator design, simulation training, human factors, human physical and behavioural response, system design and education for improved and intrinsic security, ship operations, the regulatory environment and ultimately policy." (AZIPILOT, 2007:p10)

The publication's aim is to encourage cross-disciplinary knowledge-sharing between the four key actors in this work:

- Specialists in hydrodynamic modelling and testing, both theoretical and experimental, and experts in the understanding of azimuthing control devices;
- Designers and manufacturers of marine simulation software, hardware and physical models that
 are used for the training of marine pilots. Including the designers, human factors specialists and
 manufacturers of automation and control systems, joystick systems and graphical user
 interfaces;
- The maritime training facilities using both numerical and physical simulation tools and specialist in the theory and practice of human factors (physical and behavioural components) and specialist in the training of bridge-crews and pilots;
- Operational Practitioners, including maritime pilots, ship operators/managers, pilot associations and end-users such as Maritime Authorities and Regulators specifically interested in policy and regulation.

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2. Survey target market and competition

2.1. Target Market

If the publication of the results, outcomes and recommendations of the AZIPILOT is to achieve maximum penetration throughout the EU and International Research Community, and through all interested stakeholders, then it is vital that the method of publication of this output is targeted to achieve optimal results. For this reason, the target market needs to be analysed to ensure best placement. The illustration below highlights some key issues to be addressed before any decision is made.

Key Considerations

- What other publications exist in the same field?
- What are their strengths & weaknesses?
- What (if any) niche has not yet been covered by the established literature?
- Do the established publications fulfil all the needs of readers in the field?
- What would make this publication stand out from its competitors?
- What advantage(s) does AZIPILOT offer to readers and contributors?
- Who will contribute to the publication and how large is this group?
- How can an AZIPILOT journal best reach its target audience?

Market surveys (see Appendix A) suggest that the academic peer-reviewed article market in the key areas of hydrodynamic modelling, simulation, and azimuthing control is in a mature phase and the market is already saturated, i.e. there are as many outlets for this form of published work as the supply can support. Analysis over the last ten or so years suggests that the market, whilst operating in cyclical fashion (affected by issues such as the MARSIM Conference Series, held every 3 years; www.imsf.org/marsim2012.html) has indeed reached maturity.

Obviously a mature market is an extremely difficult option when placing a new product, and the options available become differentiation – effectively starting a new cycle of market development with a 'game changing' revision, or cost leadership – accepting a low value slice of a large market segment. In this instance, it is important that the market in question has not yet begun to decline, and to be an appropriate strategy, the AZIPILOT 'product' would need to be abundantly available, cheap and easy to produce. It is clear that this is probably not an accurate description of high quality peer-reviewed academic papers. The journal markets are not uniform, therefore it is also important for the project to identify and evaluate the various segments that make up the total market. This analysis will help the project to determine which areas account for the greatest share of market growth and are more susceptible to change. This information, in turn, will help the project pinpoint the most promising opportunities within the overall market and guide the project towards a choice of specific investments. The SWOT analysis (below) highlights some of

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the strengths, weaknesses, opportunities and threats facing the development of a dedicated paper-based AZIPILOT journal.

Strengths	Weaknesses
 AZIPILOT conference in Rotterdam (24th Feb 2011) provide useful feedback on interest in subject area Reputation in marketplace; for example being a product of Newcastle University could provide a good standing/background for journals reputation Project partners from all areas of the industry; Academia, Consultancy, Model Testing Centres, Marine Simulator Manufactures, Maritime Training Institutes, Operators & Pilot Associations 	 The AZIPILOT project has a limited budget The project is inexperienced in editing journals The new journal has no Impact Factor Insufficient knowledge/experience of previous journal publication Lack of expertise
Opportunities	Threats
 AZIPILOT 'brand name', how well publicised is the AZIPILOT project Publish in a market niche has not yet been covered by the established literature The research provided by the Journal addresses growing demand for industry knowledge and understanding AZIPILOT is working with industry experts across all sectors allowing the journal to stand out from its competitors 	 Being unable to deal with demand if journal becomes successful quickly Authors might wish to publish in a more established journal Other projects/publishers look to invade the marketplace A single project partner is approached by another published to use knowledge in a different publication

SWOT Analysis

When considering entering a new market, it is important to understand your competitors – analysis of their strengths and weaknesses, their chosen business strategies, their size, profitability and customer base are all key factors in determining what opportunities may exist within a market – such as perceived gaps, as well as ensuring risks are mitigated as far as is possible. If the AZIPILOT project is to develop and publish a new journal which will achieve its primary objectives, namely the dissemination of information relating to, and the promotion of interdisciplinary cooperation in the field of azimuthing control on ships, then it must ensure that any strategy adopted is the most appropriate to those aims, and the most likely to deliver the desired results in a cost-effective manner.

2.2. Market Size

When deciding whether a 1% market share is a profitable business case or not, it is vitally important that the decision makers understand what that really means: 1% of a global market worth €5billion annually is a better proposition than 100% of a market worth only €500,000, for example. The most common measure of market size is the sum of the revenues of its participants, although it could be argued that in an area such as academic publishing, where a great deal of work is published to further international understanding, academic's reputations

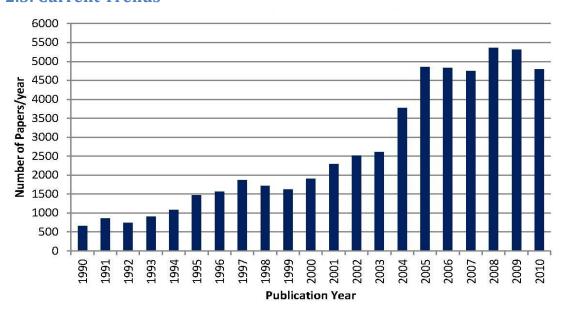
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often significantly rely on their visible output, and this is then rewarded through award of prestigious teaching and research contracts, and other awards, making the link between output and reward much less tangible. This would suggest that a simplistic measure of economic market value may be insufficient.

Precise measurement of the international journal market is difficult, as there are many small outfits publishing small quantities of low quantity, possibly low quality, output to discrete local or regional markets, in many languages and formats. For the purposes of this study, we will consider only journals which publish in English (as all the top internationally-rated ones do), and those which are listed on the major databases, specifically ISI Web of Knowledge (http://isiknowledge.com), Scopus (http://www.engineeringvillage2.com). The figures quoted in Appendix B and the two charts presented here are for the total number of results returned for each year by all three databases. Issues surrounding overlap (i.e. one paper being listed on more than one database) have not been controlled for.

The Scopus database returns 224,324 Journals if a title search is performed for "marine". In order to refine the search a more specific term must be chosen, so "azimuthing" was tried (227 papers). It seems likely that this result has excluded a significant proportion of relevant results; for this reason a middle ground was looked for: "ship AND propulsion" returns 6,725 papers. Appendix B shows some other results, delineated by year of publication. Incorrect indexing will always account for a small percentage error in figures, but a sample size of over 6000 papers is should be large enough to ensure any results are statistically significant.

2.3. Current Trends

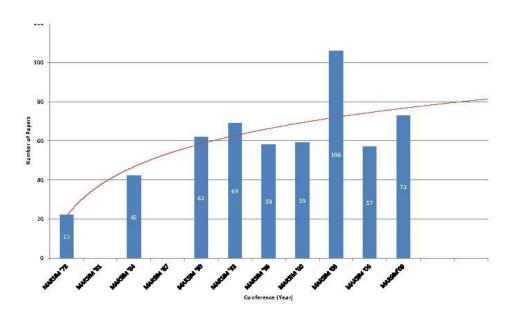


Combined number of papers in relevant areas published/year

These charts illustrate the growth in papers in all journals, and those presented at the MARSIM conference series by year of publication. The International Conference on Marine Simulation (MARSIM) is a conference series which happens every 3 years in various global locations, and

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has been running since 1978. It publishes papers which are closely related the projects' scope, and the existing data suggests that the number of papers being published each time has been generally steady, accounting for overall growth in conference size and attendance over the previous 30 years in general. Of course, these figures cannot tell us how many papers were submitted for consideration in each year, or the accompanying variation in quality of those accepted. It should be noted that the spike experienced in 2003 is most likely related to this being the series' 25th Anniversary. See Appendix B for further charts detailing other relevant search terms.



Number of MARSIM Conference Papers

Within these sample results, trends over time may be identified. Changes in the market may indicate new opportunities and threats, and have the potential to dramatically affect the market size. The external factors which may cause changes in market can often be described in terms of the political, economic, social, technological, environmental and legal conditions (a study of these forces is often known as a PESTEL analysis).

The charts in Appendix B are intended to inform an overview of the market in question. The number of papers published in the specific areas' such as ship propulsion, ship simulation and hydrodynamic modelling over the last twenty years are considered, and the results indicate moderate growth, particularly over the last ten years, Although no detailed research has been carried out, in can be surmised that with an appropriate lag applied, these growth figures will ally closely with global market growth, and hence wealth. Levels of public and private funding of research, which supports this industry directly, are directly correlated to the wealth or profit of the country or organisation in question. Therefore, although a simple trend analysis of this data would suggest continuing growth, the changes in global political and economic outlook since 2008 mean that caution should be applied, it is likely that the associated cuts to research budgets will be reflected in a reduction of research outputs, specifically journal and conference papers.

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P	Political	Current political climate is placing great pressures on academic research and publishers alike
E	Economic	Traditional paper-based publishing is expensive and current research funding levels are low
S	Social	E-reading meeting demand for instantaneous access, environmental considerations also gaining higher prominence. Political and economic climate demanding reduction of conspicuous consumption
Т	Technological	Emergence of e-reading devices is pressurising print media as never before
E	Environmental	Print media is transport and forestry product intensive
L	Legal	Issues include ownership of IPR and responsibility for mistakes and errors published

2.4.Market Attractiveness

The classic 'five forces' framework proposed by Michael Porter (e.g. Porter, 2000) is useful when considering the competitive pressures within an industry, and helps us to understand what makes companies within that market successful or otherwise in the long term. It is a qualitative assessment tool designed to improve understanding of an entity's position within the market. The attractiveness of an industry to development can be assessed, and this information can help guide strategic development. In this instance, the most valuable use of the framework would be to consider the existing market for academic journals, particularly in the fields of marine simulation and hydrodynamics, and what constraints this might put on the AZIPILOT Project's ability to enter this market successfully with a new product of its own and achieve 'profitability' (in this instance, the ability to self-sustain, or a measure of the likelihood of an industrial partner to take up the journal as part of their profit-making enterprise).



A 'Five Forces' (Porter, 2000) representation of the Academic Journal Industry

The combination of the 'five forces' under which all companies must operate can lead to a rating of the 'attractiveness' of the market sector, an unattractive market will show little or no opportunity remaining to derive profits.

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2.4.1. The threat of new entrants

The opportunities available to this publication

Academic publication is a largely segmented market in which barriers to entry are high and exit barriers are low, obviously this is good news for the existing journals and publishers, but a significant hurdle for this initiative to overcome if the project hopes to publish its own journal. Contact has been made with several established publishers in this field, and the general consensus is that the market is already saturated with journals; publishers are not looking to expand their current offering in this area, and would see this journal as being in competition with their existing titles. Common barriers to entry which are applicable in this instance include:

- Proprietary products and knowledge
- Access to inputs and distribution
- Economies of scale
- Switching costs and brand identity
- Capital requirements

Titles of existing Journal publications	Titles of conference series publishing related works
 Transaction of the Society of Naval Architects and Marine Engineers Proceedings of the Society of Naval Architects and Marine Engineers Journal of Quality and Reliability Engineering International Oceanic Engineering International Marine Technology Ship & Ocean Technology Journal of Engineering for the Marine Environment Journal of Marine Design and Operation Journal of Ship Research Proceedings of Royal Institution of Naval Architects 	 Int. Euro Conf. on High-Performance Marine Vehicles Int. Conf. on Technological Advances in Podded Propulsion (T-POD) Int. Conf. on Marine Simulation and Manoeuvrability (MARSIM) Intl. Ship Propulsion Systems Conference Int. Conf. Maritime Transportation and Exploitation of Ocean and Coastal Resources Int. Conf. on Fast Sea Transportation (FAST) RINA London branch public lectures Int. Conf. Human factors in ship design and operation Propeller/Shafting Symposium Practical Design of Ships & other Floating Structures Conference Int. Marine Design Conference Practical Design of Ships and Mobile Units Marine Science & Technology for Environmental Sustainability Conference

This list of Journal and Conference series publishing in areas of interest to the project has been compiled from a number of sources, including *Deliverable 1.1: Survey of existing conference series and published knowledge* (AZIPILOT, 2010) and the Excellence in Research for Australia Initiative list of journals (ERA, 2011). It is clear from this brief, initial study that existing opportunities for publication in the area of marine simulation are widespread, and as such barriers to new entrants may be high.

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2.4.2. The intensity of competitive rivalry

Current Publications

For journal publication the intensity of competitive rivalry is a major determinant of the competitiveness of the market, when so different journals are published it is perhaps difficult for the reader to make an informed choice. Research into the existing market, presented above, has highlighted the number of papers already being published in this field, in many similar publications. The benefits experienced by the existing journals and publishers in this market include:

- Established brand identity;
- Inside knowledge of the products and market;
- Access to distribution channels;
- Existing publishers are generating revenue from subscriptions to allow publication to grow.

There are a number of methods open to publishers and others to protect themselves from the threat of substitution in their industry, which include:

- They may try to protect themselves against substitution with exclusive distribution agreements; or
- They might protect their journals with strong branding, trademarks, patents and other psychological and legal barriers to substitution.

2.4.3. The threat of substitute products or services

Alternative methods of publication

Substitute products and services in the form of online journals, e-newsletters, RSS feeds, and open access journals, to name a few, threaten the impact and profitability (or survivability) of a dedicated project journal, as they are competing for the same business without the same constraints. Overheads in the majority of these alternatives methods are substantially reduced, allowing for much tighter operating margins. The barriers to entry are also lower, providing for potentially limitless competition.

2.4.4. The bargaining power of customers

Readers/subscribers

There is a significant yet competitive market for academic peer-reviewed content. As an example, the School of Marine Science & Technology at Newcastle University currently spends approximately £300,000 per annum on subject specific subscriptions for publications for staff and students alike to access.

Customers often display strong 'brand' loyalty in a subscription-based environment such as academic publishing, increasing both their bargaining power, and the barriers to entry. As such, any new journal (or an existing journal wishing to increase its customer base) would likely need to invest heavily in marketing and offer significant price reduction promotions, although the pay off, if successful, is a loyal subscriber base.

It goes without saying that in a free market, buyers have freedom of choice providing there is a viable alternative, so service providers (such as publishers) must always be aware that the consumer

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has the power to withdraw their custom at any time. In a subscription based industry such as academic publishing, tie-ins (generally annual) may prevent short term losses, but a lost customer is likely to represent a greater loss which is compounded month on month.

2.4.5. The bargaining power of suppliers

Authors

Authors bargaining power as suppliers is an important factor in publishing, as the providers of information in a particular field of expertise can be a source of power over the market, when there are few or no substitutes. This project consortium is in a strong position initially due to the uniquely interdisciplinary nature of the outcomes of AZIPILOT, however after this initial advantage, any journal will be at the mercy of traditional market forces.

All academics and research professionals must publish, hence the saying "publish or perish". This is a key output measurement of their success in their chosen career, and a primary method of ensuring continuing employment and funding. However, it is equally important that these professionals are seen to be publishing high quality work, and in the right places. The esteem and impact associated with the highest ranking journals (for example <u>Nature</u>) ensure that it can be extremely selective over which papers it publishes, and can support a significant publishing lag, often of several years. An unknown or poorly regarded journal on the other hand, will likely be forced to accept a much higher proportion of the papers it is offered. A fine line exists between generating sufficient content and maintaining standards of quality.

2.5. Business Strategy

All new business ventures must carefully plan their strategy before acting; that strategy must reflect the realities of the market in which the entity wishes to operate, as well as the internal organisation of the business unit. The choice of strategic direction should be made in the

context of the market, considering both the external environment and the internal organisation; allowing the new journal to grow into a successful publication over time. There are three widely accepted potential generic strategies that the project could follow (left). The choice of strategy is guided by a number of factors, including competitor positioning. This journal would ideally take a focused approach, aiming to serve the niche market of marine simulation academic publishing.

The cost-leadership approach focuses on being the lowest cost product in the market place.

The differentiated approach focuses on providing a unique service that is both different and better than your competitors.

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2.6. Risk Assessment

It is important to consider the risks against which this proposed publication must operate, and the mitigation options available to the team. The key success factors for the new journal, as demonstrated below, are those elements that are necessary in order for the project to achieve its objective of successfully publishing a dedicated journal series. A failure to manage and achieve any one of these factors would constitute a significant risk to the project.



3. Options Available for Publication

The process of publication itself has several stages, from initial acceptance and negotiation, to the all important pre-production stages of printing (or online publication) and distribution. It is not within the scope of this report to consider in detail the day to day practicalities of running a journal publication.

The market analysis conducted (see Section 2) has indicated that the existing market for academic peer-reviewed journals in the areas of simulation and hydrodynamic modelling is mature and probably near saturation. The costs associated with developing a serious competitor to the leading titles are therefore likely to be extremely high, and the likelihood of attracting a commercial publishing partner to take on this new title small. For these reasons, the focus of this business plan should shift to the most appropriate and cost-effective method of knowledge-sharing available to the project partners. This starts by considering the available distribution channels.

3.1. Distribution

It is important to consider not only the current relative strengths and market shares of the methods of distribution, but also trend patterns and emerging 'game changers', for example the proliferation of e-readers and tablet devices such as Apple's *iPad*. Along with *smartphones*, more and more people are accessing knowledge in this way, a trend which does not look likely to reverse or stall in the near future. By exploiting a new channel of distribution quickly, a niche competitor can create a competitive advantage.

•e.g. iPad •In first 80 days of distribution: •3 million iPads sold, •11000 iPad targeted apps were also available for users, more than 225,000 available (http://bit.ly/rCyXaK) •iPad sales for 2011 are predicted to reach 30 million units worldwide (http://bit.ly/f2onDb)

e-readers •e.g. Amazon Kindle •global e-reader sales (devices similar to this) showed an 80% increase over 2010 (http://bit.ly/rIZFbQ)

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Whilst email distribution lists have previously been a popular method of low-cost self-publishing, it seems likely that use of apps targeted at tablets, phones and e-readers will very soon eclipse this. The use of social media s a promotional tool alongside this form of publishing is common and greatly extends potential market reach.

Technology		Distribution method	Pros	Cons
	Paper	Direct mail, postal, etc.	Get exact number of issues ordered, more secure form unauthorised redistribution	High cost and high uncertainty as a printer needs a prespecified number to produce, this number must be sold or it is a loss.
<u></u>	RSS Feeds	Subscription to RSS via browser, iPad (or similar)	Can incorporate instant updates	Low cost, once an issue is published as many readers can access as desired
	Online	Mailing list, PDF, etc.	Mass distribution at the click of a button	Low cost, once an issue is published as many readers can access as desired, however transfer between users can occur if the file is not protected.
iPad	E-readers	Downloaded via web (PDF format)	Document encrypted against unauthorised redistribution, so each user has to pay a fee.	Low cost, once an issue is published as many readers can access as desired, however transfer between users can occur if the file is not protected.
f	Social Networking	Twitter & Facebook	Allows more communal user interaction and commenting on content	Low cost, once an issue is published as many readers can access as desired, however transfer between users can occur if the file is not protected.

Distribution channels

The two major measures of the success of this publication will be the impact it can generate and its reach into the wider scientific and *lay* community. In traditional Journal publishing, impact may be measured by article citations, but where the reach into the community as a whole is just as important, reader numbers will probably provide a more accurate measure. That is not to say citations will not still form part of the metric.

Whatever method of distribution is chosen, the level of market coverage desired is an important part of the equation: a niche interest journal should not attempt to gain the circulation figures of a populist daily newspaper, for example. As well as being prohibitively expensive, any strategy which hoped to achieve this metric would almost certainly have to abandon many of its core values, probably those factors which enabled it to stand out from the crowd in the first place, its unique selling point (USP). The three broad levels of distribution are:

Mass Coverage: Distribution through all available channels to all locations where there is demand. Only suitable for low priced products with huge consumer demand, the distribution cost is very high and requires very high sales volume to derive a profit.

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Selective Coverage: Limiting coverage to certain selected locations or distribution channels, for example a journal with a relatively small market. Publishing runs are comparable to market size to ensure the journal returns a profit (or breaks even if not for profit).

Exclusive Coverage: Targeted coverage of a small selective audience, and the most appropriate level of distribution for this business case. This level allows scope for high quality, and therefore more expensive products. Efficient and well-trained customer service is essential for satisfying and helping the customers as their expectations will rise with any increase in purchase price.

3.1.1. Co-operating with a university library:

A growing number of university libraries now offer publishing support for journals, often in the form of hosting, administration and configuration of a peer review and publishing software or system. Newcastle University has such a system (*ePrints*: http://eprint.ncl.ac.uk/) which could be utilised by the Project. The primary reason behind *ePrints* however, is open access to all publications produced by Newcastle University staff and students, and as such does not preclude previous publication in a prestigious Journal or Conference with extensive market penetration.

3.1.2. Professional publishing partner

This is a strong market sector, but the area which has seen the greatest growth in recent years is in open access publishing. The positive and negative factors are summarised in the table below. A list of publishers who are full members of the Open Access Scholarly Publishers Association, and comply with their code of conduct, can be found in Appendix C.

3.1.3. Benefits and Drawbacks of Options

The key deciders here will almost certainly be financial resources, personnel resources, and availability. Discussions with existing publishers to date have suggested that there is no current demand for another journal in this area via this route, and so this is not currently an option. Self-publishing requires extensive resources within the team, which is not feasible at a time when the Project is due to come to an end and there are no resources in place to fund the activity. The start up and ongoing costs to self-publish, or use a university-type service or cooperative, in an electronic format are relatively small, and as such it is possible that a grant could be obtained to allow the such an activity to commence, however it is highly likely that administrative support and editorial time would need to be donated by the managing partner, for the first year at least. The table below, *Journal Publication Considerations*, summarises the different options.

3.2 Pricing

It is important that the rationale for setting the cost structure is carefully considered before any decisions are made. As an output of a publicly-funded project, this journal is intended to disseminate knowledge and encourage information sharing, not make a profit. However, there is also no ongoing funding available to develop the business idea, which means that the publication must be self supporting. Therefore the driving force behind the cost structure is that of cost neutrality, it must cover its own costs.

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	Benefits	Possible Drawbacks	Under what conditions most appropriate	Things to consider
Self- publish	Full control over all aspects of publishing and timing.	Heavy workload, particularly at start up, high risk, lack of specific skill set.	Broad range of skills and competencies available in team including IT skills and a 'sales-oriented' personality.	Clear and effective workflow is imperative; back-up plan required in the event of key staff absence.
Cooperate with university press or library	Technical aspects of hosting can be handled by those who are familiar with the requirements; often provided at cost or free for in-house publications; existing framework can usually be adapted quickly and easily.	May be required to use existing template; generally not a full service model.	Journal has a limited budget; library offers a reliable service.	Having a written agreement clarifying scope of service and expectations on both parties, including conditions for termination, ownership, outsourcing etc.
Consulting services combined	Consultant can augment skills and competence lacking amongst the team and bring experience to quickly complete initial processes.	Start-up funding will be required to cover fees.	Personnel or time resources lacking but wish to maintain control over publishing process and final product; additional resources available to cover costs.	Negotiate the price of services, consider whether hourly or fixed rate more appropriate. Agree what services are covered.
Outsource	Taking advantage of services offered by vendors can allow you to publish a highly professional publication, yet retain full control.	Requires initial time investment to identify and compare prices and services. Financial costs are involved, which may be one-off or ongoing depending upon the nature of the service provided.	The team requires specific help with specific aspects of the publishing process and these services are available. You wish to take advantage of professional support, yet retain full control over your publication.	Negotiate the price of services, consider whether hourly or fixed rate more appropriate. Agree what services are covered.
Partner with professional publisher	Allows focus on content and peer review; may be able to negotiate a stipend for the editor.	Depending upon the publisher, you will have varying degrees of control over non-editorial matters;	Focus on editorial issues only; lack of key skills or time resources prohibit self-publishing; wish to launch or transition quickly and simply.	Consider ownership of the IP, will involve a formal contract covering respective obligations and exit terms.
Publishing cooperative	Offers clear guidance and a framework for setting up a new Journal quickly; can initiate contact with a broader community engaged in similar activity; free or low-cost.	Similar to working with a university library, will likely offer some support but not cover all areas; need to contribute beyond making editorial decisions.	Limited budget (must also qualify for membership)	Be sure the cooperative clarifies what services they do and do not provide; mutual expectations; conditions of termination; and ownership.

Journal Publication Considerations

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4. Promotion of the Project via Published Means

The previous sections have considered the existing market for published material in the academic areas of interest to the AZIPILOT Project, and the format a new journal could take, including the aims, scope and rationale for that decision. This analysis has concluded that the market is already saturated with similar products, and as such the most appropriate course of action is to focus on disseminating the Project's outcomes via existing journals, conferences, magazines and online where the highest possible achievable impact and distribution can be ensured.

4.1.Dissemination of the Project's Outcome and Findings through the Publication of four WP specific Papers

The project needs to maximise the exploitation and visibility of its outcomes, and as such it has been decided that the most appropriate channel for this is the submission of the four technical papers to relevant existing journals carrying high impact and distribution internationally.

The academic papers produced in the areas of hydrodynamic modelling, marine simulation, maritime pilot training and operational practice, will be best focused towards the leading journals in these areas of research respectively. This will ensure that the insights gained over the three years of the AZIPILOT project are disseminated most widely within the relevant research community, with the associated prestige of that Journal title, and hence ensure the cross-disciplinary lessons learnt are taken forward and implemented in future research. The Newcastle University ePrints service will be used to ensure open access availability of all papers (where the primary publishing journal allows). In order to comply with publishing guidelines, these papers will not initially be submitted as part of this publicly available Deliverable, but rather a summary of each paper will be included in the Appendices. Once published in high quality and relevant peer-reviewed journals, the authors will endeavour to make these publications freely available via the project website (http://pilot.ncl.ac.uk/) and Newcastle University's open access publishing service ePrints.

5. Conclusion

It is clear from this review of the available evidence, that the most appropriate avenue for the AZIPILOT Project to follow to ensure the greatest dissemination and exploitation of its outcomes, and thereby producing the greatest impact, is to publish a range of peer-reviewed journal papers and articles in the existing Journals most suited to those areas of interest.

The academic papers produced in the areas of hydrodynamic modelling, marine simulation, maritime pilot training and operational practice, will be best focussed towards the leading journals in these areas of research respectively. This will ensure that the insights gained over the three years of the AZIPILOT project are disseminated most widely within the relevant research community, with the associated prestige of that Journal title, and hence ensure the cross-disciplinary lessons learnt are taken forward and implemented in future research. The Newcastle University ePrints service will be used to ensure open access availability of all papers (where the primary publishing journal allows).

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Selected periodical titles will also be targeted for a technical press release which will sum up the lessons learnt by the project, and ensure dissemination throughout the wider European Community. These will direct traffic towards the academic papers and project website.

Finally, the Project Website will become an open source repository for all the deliverables, articles and other outputs generated by the Project, and a hub for the promotion of interdisciplinary thinking in all areas of hydrodynamic modelling, simulation, training and operational practice.

This data, taken as a whole, suggests that whilst there is sufficient market need to support a journal publishing articles in the area of marine simulation, this need is already being met by existing journals and conference series with established track record, and associated impact and commercial success. It follows that the barriers facing a new entrant in this specific market would be extremely high, and it is unlikely that any such strategy would represent appropriate use of available resources in this instance, even if it were to prove technically and financially feasible.

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ERA (2011) The Excellence in Research for Australia (ERA) Initiative; available at http://www.arc.gov.au/era/default.htm

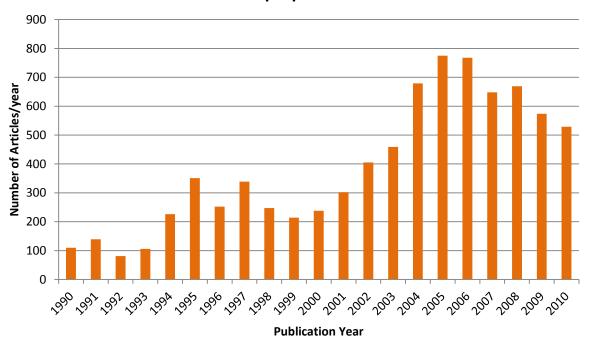
Porter, M. (2000) What is Strategy? Harvard Business Review, February 2000.

AZIPILOT (2010) Deliverable 1.1: Survey of existing conference series and published knowledge available at http://pilot.ncl.ac.uk/ July 2010

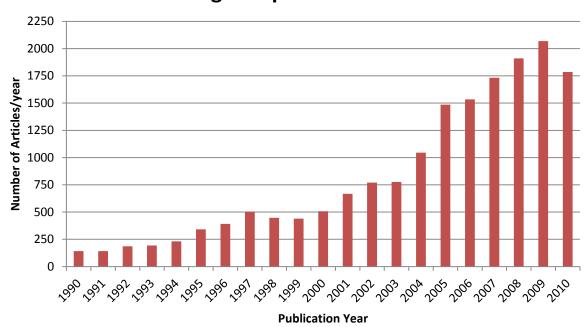
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Appendix A: Market Research - Additional graphs

The number of papers published by year, searching "ship AND propulsion"

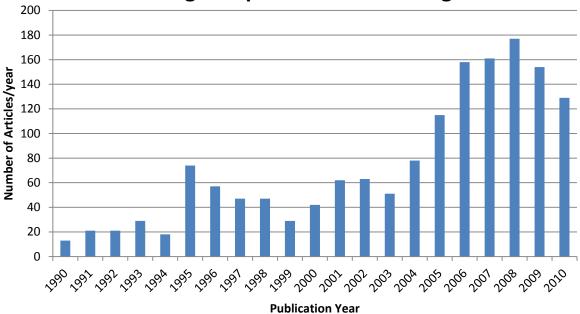


The number of papers published by year, searching "ship AND simulation"

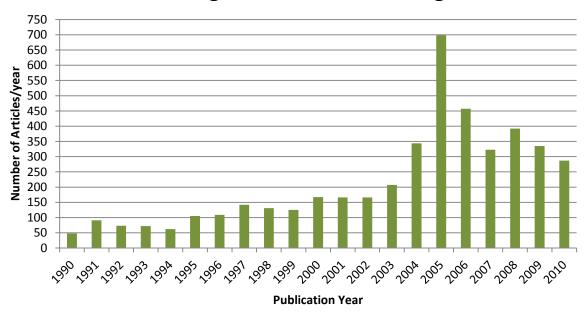


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The number of papers published by year, searching "ship AND manoeuvring"

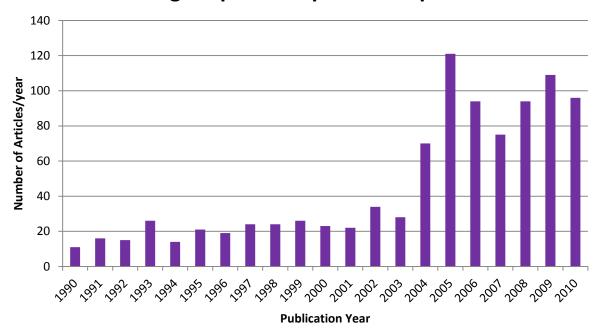


The number of papers published by year, searching "marine AND training"

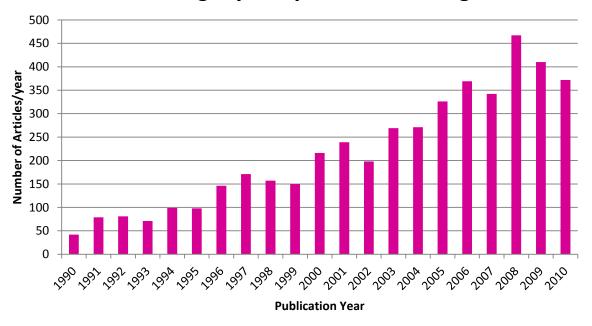


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The number of papers published by year, searching ship AND "operational practice"

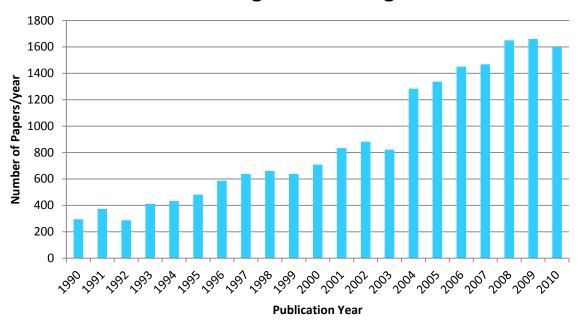


The number of papers published by year, searching Hydrodynamic Modelling



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The number of papers published by year, searching "azimuthing"



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Appendix B: Advice on setting up a new journal

• Open Access Journals -The Online Guide to Open Access Journals Publishing provides practical information and tools to support the efforts of scholars and other small teams producing independent Open Access journals.

http://www.doaj.org/bpguide/

 Open Access Scholarly Information Sourcebook -A community of practice for people who want to create open access journals (US based)

http://www.openoasis.org/index.php?option=com content&view=article&id=565&Itemid=394

 Open Journal Systems (OJS) is a journal management and publishing system that has been developed by the Public Knowledge Project

http://pkp.sfu.ca/?q=ojs

• ALPSP – Association of Learned and Professional Publishers

http://www.alpsp.org/ngen_public/default.asp?ID=245

Lots of useful info for members at

http://www.alpsp.org/ngen_public/default.asp?ID=297&groupid=196&groupname=Research+ %26+Publications (Payment required to access)

Hot Links and Cool Sites: How Do You Make an Electronic Journal Readable?

http://homepages.cwi.nl/~steven/sigchi/elec-pub/

• The International Standard Serial Number (ISSN) is an internationally accepted code which identifies the title of serial publications. In the UK the ISSN UK Centre

http://www.bl.uk/bibliographic/issn.html

(Responsible for assigning ISSN's to the serials published)

• The Impact Factor, a measure reflecting the average number of citations to articles published in journals. Often used as an alternative for the relative importance of a journal within its field.

http://www.sciencegateway.org/impact/

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Appendix C: Open Access Scholarly Publishers Association, OASPA

The following is a list of organisations and individuals are recognised as Members of OASPA, which are relevant specifically to the project.

Professional Publishing Organisations

Copernicus Publications	http://publications.copernicus.org/
Hindawi Publishing Corporation	http://www.hindawi.com/
Institute of Physics Publishing Ltd	http://journals.iop.org/
Oxford University Press	http://www.oxfordjournals.org/
Public Library of Science	http://www.plos.org/
Revistas CSIC	http://revistas.csic.es/
SAGE Publications	http://www.sage-hindawi.com/
Springer Science + Business Media	http://www.springer.com/
Utrecht University Library (Igitur)	http://www.uu.nl/EN/library/igitur
Scientist/Scholar Publishers	
Intangible	http://www.intangiblecapital.org/
J. Industrial Engineering and Management	http://www.jiem.org/
Associate Members	
Cambridge University Press	http://journals.cambridge.org/
Haworth Press (Taylor & Francis Group)	http://www.informaworld.com/
International Network for the Availability of Scientific Publication	s http://www.inasp.info/
Scholarly and Research Communication	http://www.src-online.ca/

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Appendix D: Indexing and Ensuring Journal Impact

Journals and the articles in them are published in order to create impact. Impact can take a number of forms including citations to articles, applications in clinical and practical work and as a contribution to shifting paradigms or approaches within our field (Open Access Journals Publishing http://www.doaj.org/bpguide/publish/). Hence, ensuring that the Project creates impact with our Journal is an important activity that should be consciously considered and planned for. To ensure impact for the journal three primary activities should be carried out:

- Marketing the publication
- Creating multiple entry points to your publication, such as databases or aggregators that help distribute your Journal to a broad audience in a digital world and make it visible and easy to find
- Tracking impact to benchmark the success of your publication.

Many of the outputs of these three activities provide inputs that fuel future activities. For example, as the project markets the new journal, the expected outcome should be recognition of the Journal, resulting in increased submissions, and a growing reader base. the project can track these, it is known as tracking impact.

The majority of these primary and sub-activities will be carried out by a designated marketer or member of your team who will carry out marketing-related activities. the project may also choose to outsource marketing to a third party or some smaller pieces of marketing.

For a Journal the correct indexing is very important to ensuring that it going to be accessible when someone searches for the publication. Many indexing systems do not evaluate a journal until it has been published for some time. In addition, if the quality is not up to their standards they will not include the Journal in their database. All indexing and database services have different criteria for acceptance and so applying for inclusion in them is a meticulous and continuous task. It is recommendable to create a short strategy for indexing and database coverage. This might involve applying first to these databases and indexes that are most likely to accept the journal and then applying to other services as the journal gains content and prestige (http://www.doaj.org/bpguide/publish/). Below are some of the most common sources for academic and scholarly journal papers:

Scopus - for all journals

Scopus, an Elsevier product, is both an abstract database and an indexing service, covering nearly 18,000 peer-reviewed journals, including many Open Access journals. Once you have published a fair amount of material – perhaps 15 articles – a Journal can be recommended for coverage by clicking on "recommend this publication" on the information page about Scopus. Institution librarians can share information about this database allowing as well, Scopus to track citations, so once included you can also use information from this database to generate an unofficial impact factor.

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Google scholar- for all journals

Google Scholar is a freely-accessible web search engine that indexes the full text of scholarly literature across an array of publishing formats and disciplines. More technical information for scholarly publishers and societies can be found at http://bit.ly/lyRGaf.

Open J-gate - for all journals

Open J-Gate currently aggregates metadata from 4000+ OA journals published in English and provides seamless access to the full-text on publisher websites. It covers both peer-reviewed as well as professional journals including trade and Industry journals. For contact, see details http://www.openj-gate.com/Footer/Contact.aspx.

ISI Thomson/Impact Factor

While the impact factor may be seen by some as bias, the new journal should apply for indexing with ISI Thomson, which calculates and assigns impact factors, if our Journal is in a field that emphasises this type of impact. Before applying, ISI Thomson requires that the new journal, is publishing regular content and for this reason a new journal probably does not want to apply until at least the second year of publication. It is also important to have good quality published papers at the time of publication as this will be evaluated. Journals can be recommended for inclusion online. Should your Journal be rejected for inclusion, there is a waiting period of two years before you can apply again. Full information about ISI Thomson's Web of Knowledge acceptance criteria can be found here: http://bit.ly/twDoXy. Once accepted for inclusion, a Journal will receive an impact factor after a three year waiting period, as the impact factor is based on the number of citations of the two previous years.

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Appendix E: Journal Management

The publishing landscape is changing quickly. To remain competitive the project will need to stay abreast of the trends and developments that impact all aspects of the industry as it develops. The publishing team will need to consider when and how to keep the Journal and services on track with the stated aims.

Who will run the journal and what are their qualifications?

What specific skills and resources do these people have?

The everyday management of the journal would be the responsibility of the editor and editorial team (if applicable). The editor will be responsible for the peer review process as well as the coordination between contributors, reviewers, publishers and editors and any ancillary considerations such as advertising, finance, marketing and PR.

Key considerations for the Peer-Review process:

- •Be strict with reviewers' deadlines so that authors will not have to wait an unreasonably long time before he/she gets a first response.
- •Often, and especially in complicated cases, the responsible editor may synthesise the reviewers' comments rather than using a standard letter.
- Make sure to thank reviewers for their efforts, and don't overload a specific reviewer.
- •The better the match between the content of a manuscript and a reviewer's own interests, the more interested that person will be in reviewing the paper.
- •It is highly suggested that the editor themselves writes any rejection letters, explaining why the paper is not up to standard or out of scope.
- •Be prepared to support those who are using the peer review system the project have chosen as many may be new to it or require assistance to use it properly.
- •Over time the project will likely want to re-consider our list of reviewers, adding where necessary and perhaps removing individuals who either consistently decline a review opportunity, or who do not deliver promptly.

Staffing

A dedicated journal, however published, will require a managing editor and an editorial board. It will also need to develop a database of reviewers. These may well be voluntary posts, undertaken for the purposes of international recognition and esteem, rather than for pure

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financial recompense. Administrative support will need to be provided, however. The level of support required will be dependent on the format chosen, and the period of publication.

Editorial Setup

The editor is responsible for the workflow of submission of a paper, to assigning a reviewer, to acceptance or rejection. Some models use three editors, each responsible for different aspects of the journal; Accepting editor (who papers are to be submitted), a Handling Editor, (who will co-ordained the peer review) a deciding Editor (who will decide on publication).

Financial Cost & Funding

Traditional publishing often uses a subscription model to support the costs of running a journal, though this is not always the case; many exist thanks to support from a scholarly society, advertising revenues, commercial reprints and other revenues, all avenues the project should consider exploring. It is worth noting that it generally takes 5 to 6 years for a new journal to begin generating a profit from its subscription income, so careful thought would need to be given to the financing of this initial start up period beyond the end of the project's timeline.

Printing

Cost of the publication is a going to play a large part in the success of the new journal. Below are indicative figures for the cost of a self-printed journal:

A4	Black & White	Colour front & back only, inside pages B&W	Full Colour
100 Copies 10 pages double sided	£28.34 (£0.28/Unit)	£61.96 (£0.62/Unit)	£117.33 (£1.17/Unit)
100 Copies 20 pages double sided	£48.34 (£0.48/Unit)	£81.96 (£0.81/Unit)	£192.32 (£1.92/Unit)
250 Copies 10 pages double sided	£65.58 (£0.26/Unit)	£131.93 (£0.53/Unit)	£237.08 (£0.95/Unit)
250 Copies 20 pages double sided	£113.58 (£0.45/Unit)	£181.93 (£0.73/Unit)	£412.08 (£1.65/Unit)
500 Copies 10 pages double sided	£122.35(£0.24/Unit)	£228.15 (£0.46/Unit)	£428.30 (£0.86/Unit)
500 Copies 20 pages double sided	£222.35 (£0.44/Unit)	£328.15 (£0.66/Unit)	£778.30 (£1.56/Unit)

Table: Quote - Newcastle University - Print Services (2011)

Appendix F illustrates typical webhosting fees for a Journal website. At present, scholarly publishers are largely basing their funding model on the provision of volunteer services and inkind support, routes which are easily accessible to the project. However, some charge a publication fee and sometimes can receive support from a funder such as the European Union, a

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national research council or a University. Alongside these possible sources of funding many more can be added, including:

- Added value products (reprints and permissions)
- Advertising
- Fund-raising/donations
- Institutional subsidies
- Membership dues and other society funding
- Publication and/or submission fees
- Grants
- Sponsorship
- Subscription income

Should the project choose to introduce publication and/or submission fees, it needs to be remembered that these often need to be set quite low initially until a base of loyal authors is built up and the journal has achieved a reputation that people are willing to pay for. The choice of financial model will play a key role in choosing the project business strategy.

Staffing Cost

Depending on the amount of work the journal wishes to keep in house and the amount it wishes to outsource, there are a number of options available. The basic requirements for staffing at this stage to run a full time publication would be based on a predicted demand. If there was any variation from a predicted journal demand then the staffing requirements would need to be changed accordingly. Staff would be responsible for the day to day running of the journal and the co-ordination between editors, reviewers and contributors. There may also be additional costs associated with the paying of reviewers.

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Appendix F: A breakdown of a typical fully hosted service from '123-reg'

There are a number of commercial options for web hosting available, and the price increases broadly in line with the service provided. As University research spin out, the journal could use Newcastle University's hosting service (http://bit.ly/tnlypT). A full service offering might include a full bespoke website with member services, branding, marketing, search engine optimisation (SEO) and mailing list management. A simpler option could be a simple web publishing site based on a technology such as <code>Wordpress</code> (http://wordpress.org/). A summary of a typical commercial hosting service can be found in Appendix D. Whilst good SEO can ensure a website rates highly in relevant online searches, a more direct (and more costly) approach could involve the use of targeted advertising and other forms of direct marketing.

The following breakdown illustrates what would be included in a basic business web hosting package, costing approximately €5/month (http://www123-reg.co.uk/).

Summary

Web space	25GB
Data limit	Unlimited
Mailboxes	500
Free domain names	2
Host multiple sites	Yes

Support GuaranteeUK based - online and telephone
7 day money back guarantee

Infrastructure - the foundations of your web space

Operating system Linux or Windows 2008
Web server Apache (Linux) or

FTP accounts 1
Online site manager Yes
Data centre location UK

Domain names - the addresses where people find your site

Free domain names 2

Extra domains Unlimited

Subdomains Unlimited (coming soon)

Domain pointersYesExternal domains5DNS managementYes

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Scripting - helps you create more dynamic pages

CGIYesPerl v5.8YesServer Side IncludesYesCustom error pagesYes

PHP v5 Linux only
Perl custom modules Linux only
Python v2.4 Linux only
ASP v3 Windows only

ASP.NET -

v2, 3 and 3.5

Microsoft XML

ODBC.NET

Windows only

Windows only

Windows only

Windows only

Databases - create database-driven sites and use apps

Number of databases 5

Mailboxes

Auto-responders

Database size 150MB **Online database administration** Yes

MySQL v5 Linux only
Microsoft SQL 2005 Windows only
Microsoft Access support Windows only

Email - send and receive messages easily

500

Yes

Mailbox size 5GB **Aliases** Unlimited **POP3 and SMTP** Yes **IMAP** Yes Webmail Yes **Forwarding** Yes **Antivirus and spam** Yes Catch-all email Yes

Security - protect your site and give visitors confidence

Dedicated SSLNoShared SSLYesPassword protect foldersYes

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Marketing - promote your site and see how visitors use it

Statistics tool Yes Google advertising £30

Support - get help if you need it

UK phone support Yes
Online support Yes

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