The Technology Management Network

Membership Proposal and Agreement

2008-2010

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1. Proposal summary

You are invited to join the Technology Management Network (TMN), a network of 11 oil companies (BG, BP, Chevron, ConocoPhillips, ENI, OMV, Petrobras, Shell, StatoilHydro, Total and Woodside) aimed at promoting shared learning and best practice in technology management within oil companies. The members are happy to welcome a limited number of new companies - who have a strong interest in technology and improving the processes related to its development and deployment - to join and add value to the network.

TMN was founded in 1998 by OTM Consulting - a specialist firm of technology management consultants working in the upstream oil and gas industry – and they provide ongoing management and facilitation of the network.

The objectives of the TMN are:

- To identify and improve understanding of best practices and critical success factors for effective technology management processes within oil companies
- To solve problems through sharing of existing and future solutions to technology management issues
- To learn about approaches to similar issues from other industry sectors or technology management specialists

The benefits of TMN membership include:

- Identification of optimum technology management process components to suit company culture and corporate objectives, including agreed critical success factors
- Practical solutions which can be applied in a timely and cost effective manner
- Development of network of contacts with whom to discuss mutual interests in technology management
- Increased knowledge of technology management methods applied in other industries and contained in academic theories
- Opportunity to question experts in technology management
- Greater focus within R&D programmes leading (in time) to increased company profitability and achievement of corporate R&D related objectives

"I have highly valued the TMN meetings. It has been a vehicle to establish a valuable network of R&D strategy makers, to informally discuss the company strategies and, outside the meetings, to discuss and invite participation in specific projects." Research Manager, ConocoPhillips

"I was an active member of TMN for two years and found it to be an informative, highly interactive and well managed networking and informal benchmarking opportunity. OTM has brought together a diverse group of E&P technology managers to share and discuss the full cycle of technology management issues from innovation to deployment and value creation. I know of no other forum that does this and would encourage any E&P technology manager who wishes to expand his/ her horizons to join the group and benefit from a true shared learning experience." Manager, Technology Strategy & Planning, Shell E&P International

The TMN meets twice per year for a 1.5 day forum, and summaries of the meetings/ topics to date can be seen in appendix 1.

The annual membership fee is £3,300 pounds sterling, plus an initial joining fee of £1,000 pounds sterling. The membership fee will remain at this level for the years 2008-2010 inclusive. Members enjoy full access to a members-only functional website which includes meeting agendas and minutes, subject briefing notes, presentation slides, a membership and speakers directory as well as toolkits and information packs as identified by members at meetings.

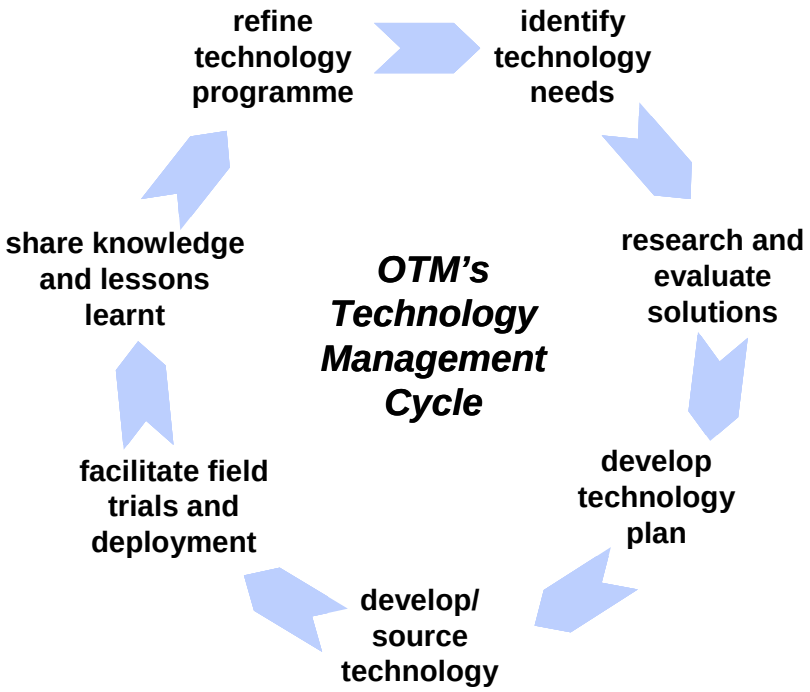
To become a member directly please just sign and return two copies of the Membership Agreement in Appendix 4.

For further discussion regarding this proposal, please contact Chris Dudgeon, Managing Director, at OTM Consulting Ltd, 44 Quarry Street, Guildford GU1 3XQ, UK (phone: [44] 1483 598000, fax: [44] 1483 598010, e-mail: chris.dudgeon@otmnet.com).

2. Background to TMN

In an industry environment where there is an increasingly urgent need to find methods for cost reduction, enhanced oil recovery and access to hitherto inaccessible oil and gas accumulations, excellent technology management can make a significant difference to a company's profitability.

A typical technology management process includes such components as identifying and prioritising technology needs, identifying and evaluating technology solutions, transferring or developing selected technologies, managing subsequent portfolios of technology assets and capturing lessons learnt. R&D activities which are well aligned with asset and corporate needs and are effectively applied by the assets are common industry goals. OTM have developed a theoretical technology management 'cycle' which has been validated by the TMN over several years and this is illustrated below.



TMN aims to provide a forum where participating members can share, in an environment of trust and confidentiality, the different technology management processes they each use. This will lead to mutual learning, the identification of critical success factors and the development of solutions to common problems.

3. TMN operation

Membership of the network is open to all oil companies, subject to approval of existing members. The network has proven since it was founded that all companies, whatever their size, can equally contribute to its success and effectiveness, although in the future members may wish to limit the size of the forum to maintain meetings at a manageable size to facilitate free flowing discussion between all attendees.

Meetings are 1.5 day events and take place twice per year hosted on a rotational basis by member companies. Each meeting is themed and targeted towards a particular technology management process, concept or related issue. Themes are agreed by members according to priorities, rather than following the technology management cycle step by step. Examples of previous themes include:

- Optimising the take up and implementation of technology
- Identifying and prioritising technology needs
- Promoting and managing radical new technology
- Capturing and managing knowledge about existing and emerging technologies
- Valuing of technology

Each meeting starts with one operator member and one or two non-members (e.g. guest speakers from oilfield service companies, major manufacturers, non oil and gas sector companies) giving a detailed presentation describing how their organisation addresses the particular process, their approach to or understanding of the issues, their own perceived strengths and weaknesses, the particular problems they have encountered and ideas/ best practice suggestions for the future.

All members are then requested to make a presentation on their company's experiences/ lessons learnt/ best practices relating to each meeting topic, to ensure consistency and clear items for subsequent discussion. It is proposed that one or two ‘case studies’ are included within these slides to bring the lessons learnt and best practices to life more effectively.

These presentations stimulate open round-table discussions where other member attendees can informally share their own processes and thoughts.

Each meeting results in the identification of practical best practice improvement processes which members can apply. A dedicated TMN website has been developed for the mounting of deliverables, and now incorporates a wealth of downloadable information on this subject.

Each meeting includes a dinner on the middle evening giving members the opportunity to continue discussions and provoke new and productive approaches within member companies.

The role of OTM in the TMN operation is varied. Prior to each meeting OTM issues pre meeting notes (see Appendix 2), identifies external and member speakers and arranges meeting and dinner locations. During the meeting OTM is responsible for chairing and facilitating the meeting, introducing speakers and developing clear meeting conclusions including critical success factors. On completion of the meeting OTM distributes notes of the meeting and produces toolkits and information packs as required, as well as conducting general administrative duties such as updating and maintaining the website.

In addition, TMN works in close co-operation with other organisations promoting technology development and implementation in the upstream oil and gas industry, such as ITF (the UK industry technology facilitator), Demo2000 and Intsok in Norway, and national governments, involving such organisations in workshop meetings wherever possible.

4. What will it cost and how do I join?

Whilst membership of the Network is open to all oil companies, existing members will decide whether or not a potential new member will be admitted on a case-by-case basis. This is important to ensure that the trusting and sharing spirit of the Network is maintained and that meetings are maintained at a manageable size.

The annual fee for membership of the Technology Management Network is only £3,300 pounds sterling, payable on joining in one lump sum and thereafter each January in which the organisation remains a member. The membership fee will remain at this level for the years 2008-2010 inclusive. Members joining for the first time will be liable to an additional joining fee of £1,000 pounds sterling. This recognises the input of operators who have supported and developed the TMN over the last 8 years and enables the release of all previous documentary deliverables via the provision of a password for the private area of the website: http://www.tmn.org.uk

If having read this proposal you are keen to join the TMN then please sign two copies of the attached Membership Agreement and send them to Chris Dudgeon at the address below. OTM will then countersign these agreements and return a copy to you for your records. You will receive details of the next meeting in due course.

If you are interested in finding out more information regarding the TMN please contact:

Chris Dudgeon
OTM Consulting Ltd
44 Quarry Street
Guildford GU1 3XQ UK

Phone: +44 1483 598000
Fax: +44 1483 598010
E-mail: *chris.dudgeon@otmnet.com*

Appendix 1: History of TMN meetings to date

No.	Date	Topic	Host	Guest Speakers
1	15/10/98	Technology Needs Identification	Conoco, Aberdeen	BNFL
2	02/02/99	Selection of Technology Solutions to Meet Prioritised Needs	Elf, London	Glaxo, Cambridge University
3	11/05/99	Technology Strategy	Saga, Sandvika	Kvaerner, UK DTI
4	08/09/99	The Profitable Application of Technology	Mobil, Banff	Anglian Water
5	15/03/00	The Value of Technology	Shell, London	Borealis Group
6	06/06/00	The Acquisition of Technology	Norsk Hydro, Bergen	
7	14/09/00	Technology Knowledge Management	BP, London	Granherne
8	30/11/00	Increasing the Take-up of Technology	TFE, Pau	Coflexip Stena Offshore
9	31/05/01 - 01/06/01	Globalisation of Technology Development	Norske Conoco, Stavanger	Halliburton, INTSOK
10	04-05/10/01	How to Promote and Manage Radical New Technology	ENI Agip, Milan	Saipem, Fiat
11	31/01/02 - 01/02/02	Optimising Supplier Relationships for New Technology	BG, Reading	Schlumberger, OTM
12	23-24/5/02	Optimising Internal Organisation and Human Resources for New Technology	OMV, Vienna	EFS
13	10-11/10/02	Optimising Links with Universities and Research Institutes	Statoil, Trondheim	NTNU, Sintef
14	30-31/01/03	Accelerating the uptake of technology	Shell, Rijswijk	Heerema, Petrobras
15	22-23/05/03	Knowledge management	Norsk Hydro, Porsgrunn	Hydro Aluminium, ChevronTexaco
16	19-10/10/03	Performance improvement including performance measurement/kpis	BP, Sunbury	Shell
17	05-06/02/04	Technology marketing	Petro-Canada, London	Imperial College London
18	27-28/05/04	Technology resourcing	Chevron, Aberdeen	Qinetiq, Woodside
19	07-08/10/04	IP (intellectual property) strategies	ENI, Milan	Saipem, STMicroelectronics
20	27/01/05	R&D Portfolio Optimisation	BG, Reading	Rolls Royce, Schlumberger
21	13-14/10/05	Innovation stimulation and delivery in the future	Shell, Rijswijk	Oxford University
22	04-05/05/06	Strategies for technology field trials / demonstrations	ConocoPhillips, Houston	ConocoPhillips
23	21-22/09/06	Technology value analysis/ business case definition	Statoil, Trondheim	EMGS
24	15-16/03/07	Technology Cooperation with 3rd parties	OMV, Vienna	Vienna University of Technology
25	20-21/09/07	Long-term technology strategy planning	Hydro, Bergen	Statkraft

Appendix 2: Examples of Pre-Meeting Briefing Notes

Example 1: Optimising Supplier Relationships for New Technology

The topic for this meeting is 'Optimising supplier relationships for new technology'. Therefore some initial points are set out below which some of you have indicated you would like to discuss, and it would be very helpful if you could all try to cover most - if not all - these points in your slides (as well as any other points you wish to include).

Proposed points are as follows:

- What TYPES OF SUPPLIERS does your company seek to develop relationships with – and why?
- What TYPES OF RELATIONSHIPS does your company seek to develop with these different types of suppliers – and why?
- Does your company follow different strategies based on SUPPLIER SIZE/ criticality/ spend etc (e.g. for large companies (service companies/ contractors) versus small companies)? If so, what different strategies do you use?
- What has worked well – can you give some EXAMPLES OF SUCCESSFUL STRATEGIES?
- How has your company INITIATED these relationships? Can you give examples?
- How has your company subsequently DEVELOPED these relationships? What critical success factors can you identify?
- What is your company's overall approach to SUPPLY CHAIN RELATIONSHIPS?
- How does your company MEASURE THE BENEFITS of developing supplier relationships for new technology? What is your performance measurement system?
- What RISKS has your company identified relating to developing supplier relationships for new technology, and how do you manage those risks?
- What EXAMPLES OF SUCCESS do you have?

Example 2: How to Promote and Manage Radical New Technology

The topic for this meeting is 'How to promote and manage radical new technology'. Therefore some initial points are set out below which some of you have indicated you would like to discuss, and it would be very helpful if you could all try to cover most - if not all - these points in your slides (as well as any other points you wish to include).

Proposed points are as follows:

- What PROCESSES does your company use to promote and manage radical new technology? You may specifically like to describe processes for IDENTIFYING and CAPTURING radical technology, as well as processes for APPLYING radical new technology.
- What CULTURE does your company seek to develop to promote radical innovation and subsequent application?
- What issues of SPEED do you find exist, when seeking to promote and manage radical new technology? For example, do you find that success comes from not putting time constraints on innovators, or from putting innovators under specific time pressures?
- How does your company FUND radical new technology identification and application?
- What does your company think the INNOVATION SUPPLY CHAIN looks like (externally) and how does your company stimulate that supply chain?
- How does your company MEASURE THE BENEFITS of capturing and applying radical new technology? What is your performance measurement system?
- What RISKS has your company identified relating to capturing and applying radical new technology, and how do you manage those risks?
- What EXAMPLES OF SUCCESS do you have?

Appendix 3: Background Information on OTM

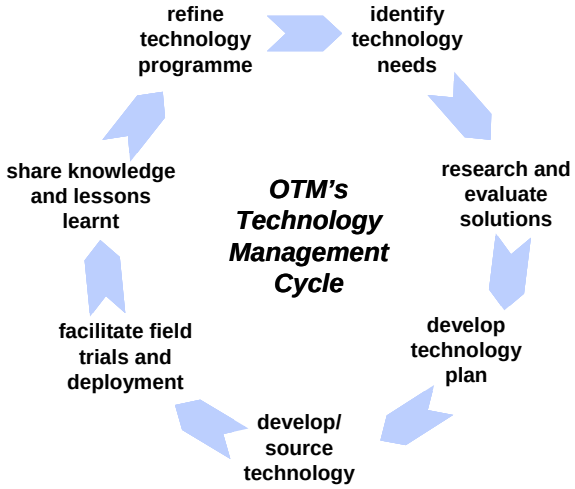
OTM is an independent firm of technology management consultants specialising in upstream oil and gas, helping oil companies and their suppliers to identify, commercialise and deploy new technology.

OTM works with operators worldwide helping to identify technology opportunities and state-of-the-art, to share knowledge and lessons learnt about oil and gas technologies and to get them deployed more quickly and effectively.

OTM also works with technology developers and suppliers to help improve understanding of demand and competition for specific technologies, build relationships with clients, raise finance, and speed up commercialisation and time to market.

OTM's areas of expertise include:

- **Market intelligence**
  - State-of-the-art reviews
  - Demand/ competitor analysis
  - Market foresighting
  - Technology valuation
- **Strategy planning**
  - Technology needs analysis
  - Technology plan/ strategy development
  - Business plan development
  - Supply chain development
- **Technology commercialisation**
  - Business planning and fund-raising
  - Proposal development and marketing
  - JIP (Joint Industry Project) initiation
  - Project management and facilitation
- **Knowledge-sharing networks**
  - Network initiation/ management
  - Web-based information sharing
  - Workshop facilitation
  - Technology performance databases



OTM's clients include more than 30 international oil companies and more than 80 service companies, suppliers, and government/ industry bodies.

If you need to identify and deploy new technologies more quickly and effectively, or you have a technology or product to develop or bring to market, OTM can help you.

To find out more, please contact Chris Dudgeon, OTM's Managing Director, on +44 (0)1483 598000 or by e-mail at chris.dudgeon@otmnet.com, or visit OTM's website at www.otmnet.com.

OTM - Selected Project Experience

Market intelligence

- **XHPHT HIPPS technologies**. Identification of technology gaps for subsea systems for extreme HP/HT wells. Clients: DeepStar consortium, Boreas Consultants.
- **Subsea technology**. Review of emerging technologies/ trends for subsea/ deepwater. Client: BG Group
- **Mature asset technologies**. Technology foresighting exercise relating to mature oil and gas assets Client: ITI Energy
- **Perforating technology**. Market/ technology analysis for well perforating technologies worldwide Client: confidential
- **Downhole monitoring technologies**. Analysis of market demand, competition and commercialisation strategies. Client: UK university

Strategy planning and development

- **TMN**. Initiation and ongoing management of the Technology Management Network, a forum for sharing knowledge on technology management processes. Client: 11 oil companies. www.tmn.org.uk
- **Kashagan technology plan**. Development of technology plan for partners in a major field development Client: Agip KCO
- **BP Technology Plan. Development of asset-specific technology plans. Client: BP**
- **Technology management coaching**. Coaching (including development of best practice guidelines and tools) for an oil company's internal technology management team. Client: confidential oil company
- **Accelerated technology deployment**. Research, analysis and benchmarking to define procedures for accelerating the deployment of new technology. Client: Confidential operator

Technology commercialisation

- **DISH JIP**. Initiation and management of joint industry project (JIP) for deepwater installation of subsea hardware. Clients: 7 operators, 6 contractors, 10 suppliers, BMT Fluid Mechanics. www.dish-jip.com
- **MONITROL JIP**. Initiated and managed this JIP to develop and intelligent downhole monitoring and control system. Clients: 5 operators, Phoenix/ Schlumberger
- **OIWM JIP**. Initiation and management of photo-acoustic oil in water monitor JIP, including technology development and testing, and field trials. Clients: 6 operators, Kvaerner Oilfield Products. www.oiwm.co.uk
- **SAFEBUCK JIP**. Initiation and management of JIP relating to Safe Design of Hot On-Bottom Pipelines with Lateral Buckling. Clients: 6 operators, 4 service companies, Boreas Consultants. www.safebuck.com
- **Flexible risers JIP**. Initiation and management of JIP to develop solutions for flow-induced pulsations in flexible risers. Clients: 4 operators, MMS, HSE, Bureau Veritas. www.flexible-risers.org

Knowledge sharing networks

- **IWIS**. Management and facilitation of this network, to develop interface standards for intelligent well systems. Clients: 8 operators, 17 service companies/ suppliers. www.iwis-jip.com
- **SOKS**. Initiation and development of this online knowledge base relating to water and gas shut-off. Clients: 6 operators. www.soks-project.com
- **DEA(e)/ PEA/ FEA**. Management of the European Drilling Engineering Association (Europe), the Production Engineering Association, and the Facilities Engineering Association. Clients: 20 operators, 5 service companies. www.dea-europe.com, www.peajip.com, www.fea-forum.com
- **DeepStar**. Development & maintenance of online knowledge base and website for DeepStar JIP. Client: ChevronTexaco/ DeepStar members. www.deepstar.org
- **ETF**. Initiation and management of the Expandable Technology Forum, relating to expandable casing and expandable sand screens. Clients: 14 operators, 11 service companies. www.expandableforum.com
- **TAML**. Management of the Technical Advancement of MultiLaterals network. Clients: 14 operators, 7 service companies. www.taml.net

Appendix 4 – Membership Agreement

1. Agreement summary

This Agreement is entered by and between

……

(the 'Member') and OTM Consulting Ltd (Registered No. 2856199) having its registered office at 44 Quarry Street, Guildford GU1 3XQ UK (hereinafter referred to as 'OTM').

Whereas OTM is organising and managing the Technology Management Network (the 'Network'), and the Member wishes to participate in the Network. This Agreement consists of this Agreement, and The Technology Management Network Membership Proposal (the 'Proposal').

2. Scope of Services

OTM shall provide Services as set out in the Proposal at its sole risk and under its exclusive direction, control and responsibility. Services shall be provided by competent supervisory, technical and other required personnel capable of diligently performing such work as is set out in the Proposal.

3. Definitions

Affiliate means any parent company controlling directly or indirectly, a Member, and all present and future companies in which a Member or its parent company controls directly or indirectly and/ or owns fifty per cent (50%) or more of the stock, and any company at the end of a series of companies beginning with the Party, so related that each company in the series, except the Member, is directly affiliated with one or more companies earlier in the series.

Agreement means this Agreement and the Proposal.

Network means The Technology Management Network as described and referred to in the Agreement and the Proposal.

Representative(s) shall mean the person(s) who at any time is appointed by each Member to act on behalf of the Member in all matters related to the Agreement.

Results shall mean all tangible materials, documents and/ or information supplied by OTM, including meeting minutes, agreed critical success factors, process catalogue, methods, techniques, systems, drawings, designs, specifications, data, electronically recorded and stored data, computer programme and calculations that result or develop from or are incidental to the Network.

Technical Information shall mean any tangible materials, documents and/ or information supplied by Members during or in the pursuance of Network meetings, including results, methods, techniques, systems, drawings, designs, specifications, data, electronically recorded and stored data, computer programme and calculations.

4. Network Organisation

4.1 A steering committee will be established comprising all Representatives and OTM.

4.2 The steering committee shall have the power to:

(a) decide on changes to the Network work,

(b) enter into confidentiality agreements with Third Parties, and

(c) unanimously agree any changes to Members' and OTM's confidentiality obligations under clause 7.

4.3 Decisions shall be made by the steering committee by simple majority vote, except for decisions to change Members' and OTM's confidentiality obligations. At least two-thirds of the members of the steering committee must vote in order to make valid decisions.

4.4 Costs incurred by the Members in connection with Network meetings shall be the responsibility of each Member.

5. Project Commencement & Duration

5.1 The Network commenced in 1998 and will continue until such time that the majority of Representatives or OTM agree that the Network shall be dissolved.

6. Effective Date & Term

6.1 This Agreement shall take effect following its signature by both OTM and the Member.

6.2 If not terminated earlier, this Agreement shall terminate on dissolution of the Network in accordance with Clause 5.1.

6.3 This Agreement may be terminated by the Member at any time without cause by writing to OTM. Termination will take effect on receipt of such notice by OTM.

6.4 No refund of membership fees will be made following termination. Invoices for membership fees properly issued prior to the date of termination will be honoured by the Member. The Member will be entitled to all Results from the Network prior to termination.

7. Title

7.1 The Results and all equipment supplied or purchased from funds provided by Members, shall belong to OTM. OTM agrees to grant, and hereby grants to each Member and its Affiliates an irrevocable, paid up, non-exclusive worldwide licence to make use of the Results in the normal course of the Members' business, subject to the confidentiality obligations contained in clause 8.

7.2 The Technical Information shall belong to the Member originating such Technical Information. Each Member agrees to grant, and hereby grants to each Member and its Affiliates and OTM an irrevocable, paid up, non-exclusive worldwide licence to make use of the Technical Information in the normal course of the Members' business, subject to the confidentiality obligations contained in clause 8.

8. Confidential Information

8.1 Save as is expressed herein, all Technical Information and Results obtained by the Parties to the Agreement in the course of the Network hereunder shall be considered confidential and shall not be divulged by the Parties, their servants or agents to any person, firm or corporation other than Affiliates of Members and OTM. Under clause 4.2 the steering committee may unanimously propose from time to time that a document originating from the Network is placed in the public domain, subject to approval by OTM or Member responsible for originating the document or results.

8.2 The foregoing restriction shall not apply to any information which:
(a) at the time of disclosure is in the public domain, or
(b) after disclosure becomes part of the public domain (otherwise than through an unauthorised disclosure of the disclosing Member, OTM or Affiliate), or
(c) the receiving party can show was rightfully in its possession at the time of disclosure without limitation or restriction of disclosure.
(d) is independently developed by the receiving party.

9. Payment

9.1 The annual membership fee is as detailed in the Proposal. The fee is payable upon signature of this Agreement by both OTM and the Participant, and thereafter in each January in which this Agreement remains in effect.

10. Obligations

10.1 The Member shall participate in and contribute to the Network in a professional, fair and responsible manner in accordance with the Agreement and the Proposal.

10.2 OTM will use its reasonable endeavours to ensure that the Network is managed as specified in the Proposal, as modified from time to time by the steering committee.

10.3 OTM shall not be held responsible for errors, failures or omissions in execution of the Network, which are due to the Member or other Members not meeting their obligations under this Agreement.

11. Liabilities

11.1 The Member agrees to hold harmless all Parties, in the event that any information contained in the Results not owing to any error, failure or omission of OTM, prove to be the cause of any loss or damage to a Party.

11.2 The Member agrees to limit the liability of OTM, in the event that any information contained in the Results owing to any error, failure or omission of OTM, proved to be the cause of any loss or damage to the Member, to the cost of re-work of the services provided by OTM.

11.3 For the avoidance of doubt the benefits and limits of liability expressed herein shall also extend to the Member's respective Affiliates and, furthermore, these provisions shall apply irrespective of negligence of either party.

12. Law

12.1 This Agreement shall in all respects be construed and take effect in accordance with English Law.

In witness thereof:

For and on behalf of **OTM Consulting Ltd**

Authorised signature:	.....
Name in block letters:	CHRISTOPHER DUDGEON
Title:	MANAGING DIRECTOR
Date:	.....
Location:	GUILDFORD, UK

For and on behalf of the **Member**:	.....
Address:	.....
Authorised signature:	.....
Name in block letters:	.....
Title:	.....
Date:	.....
Location:	.....