2016 ANNUAL REPORT

International Centre for Electronic Navigational Charts

Our mission:

To provide services, at a low cost, to ENC Producers, that ensure their ENCs are:

- compliant to the international standards;

- consistent across the global dataset;

- and readily available for use.

This is so that shipping can navigate safely, efficiently and confidently, whilst ensuring other maritime users are using the same approved data.

2016 ANNUAL REPORT—CONTENTS

CHAIRMAN'S MESSAGE

I am proud to present the third annual IC-ENC report in its current form. This report demonstrates in itself the maturity level IC-ENC has achieved over the years.

In this 2016 report, you will read how IC-ENC is fulfilling its mission: "To provide services, at a low cost, to ENC Producers that ensure their ENCs are compliant to the international standards, consistent across the global dataset, and readily available for use".

You will see IC-ENC has made progress in all of its core functions. Production Support is well established through validation training and a Technical Conference; validations are up by approximately 10%; distribution is up by a quarter; and revenue management is returning over $25m/year to the ENC Producers.

You will see that our Membership and ENC coverage has increased. The IC-ENC portfolio now provides about half of the WEND ENCs. Consequently, IC-ENC continues to make a firm contribution to the WEND Principles.

You will see that the concept of providing global collaboration with a regional focus has become operational. IC-ENC now operates an effective network with the UK based HQ and regional offices in Australia, Brasil and the United States.

You will see that IC-ENC is preparing for the future by investments in technology to deliver its core functions. Most notably, the IC-ENC Data Management Database will migrate to a full cloud based contemporary application.

You will see that IC-ENC has maintained its financial sustainability. The 2016 annual balance and IC-ENC operating balance ended above the predicted forecasts.

All in all, IC-ENC has had a successful year. I feel that IC-ENC has provided effective services so that shipping can navigate safely, efficiently and confidently. The next challenge is to decide how other maritime users can use the same approved data.

Captain RNLN M.C.J. (Marc) Van Der Donck
IC-ENC Chairman
Director Netherlands Hydrographic Office
Hydrographer of the Royal Netherlands Navy

GENERAL MANAGER'S INTRODUCTION

Welcome to IC-ENC's 2016 Annual Report, which describes IC-ENC's organisation performance during 2016 and looks ahead to 2017.

It has been a very productive year for IC-ENC. We held our Inaugural IC-ENC Technical Conference in April. When asked how to measure the value and success of the Conference, the delegates answered with a deceptively simple '…**Better ENCs'**.

The 2016 Annual Report, therefore, describes how IC-ENC is contributing to '...Better ENCs'. The Worldwide Electronic Navigational Database (WEND) is now made up of over 15,500 ENCs. About **half of these are from the IC-ENC folio**, following the inclusion of the large US ENC folio in September.

IC-ENC's members' ENCs are subject to IC-ENC's core services. Over the year, 52 international delegates received face-to-face training from IC-ENC. In terms of quality assurance, more than 10,000 ENC files have been validated by our international validation team. 4.5% of these identified issues deemed dangerous to safe navigation, corrected by the Producer before release to users. A further 15% of the validations conducted offered improvement advice to the Producer.

These validations have been conducted by our truly international team, with IC-ENC offices now operational in **Australia**, **Brasil**, **United Kingdom** and **United States** providing a regional focus to the validation reports. The central team in the UK continue to validate data, and coordinate the international work.

Once an ENC is in use, IC-ENC protects the interests of our members through active management of the **Value Added Reseller** (VAR) network. 2016 ENC sales volumes are in line with forecast, **23% higher** than 2015. IC-ENC's cost conscious ethos, not-for-profit status and increasing economies of scale mean the cost recovery fee remains at **$1** per annual subscription sold.

Inward investment is being made by IC-ENC to improve its services to members, in particular to its in-house technology. A key tool – the Data Management Database – has been completely redesigned and will be 'live' from January 2017.

We held our largest ever Steering Committee meeting in September, where the group recognised the growth of IC-ENC and its momentum, in no small part thanks to the active approach taken by the outgoing Chairman, Mathias. The new incumbent, Marc, has continued with equal enthusiasm and energy. His reflections on his first 100 days, on page 16, make interesting reading.

The next year ahead promises to be an important, and equally busy, one for IC-ENC.

Mr James Harper
IC-ENC General Manager
Taunton, United Kingdom

STRATEGIC REPORT

IC-ENC's Vision

To be recognised as the leading supplier of services for validation, harmonisation and global distribution of ENCs.

IC-ENC's Mission

To provide services, at a low cost, to ENC Producers, that ensure their ENCs are:
- compliant to the international standards;
- consistent across the global dataset;
- and readily available for use.

This is so that shipping can navigate safely, efficiently and confidently, whilst ensuring other maritime users are using the same approved data.

IC-ENC's Core Services

1. ENC Production Support
2. Independent ENC Validation
3. Distribution
4. Revenue Management

IC-ENC's Global Operating Structure

IC-ENC has a Headquarters office and IC-ENC Regional Offices report to it. Production Support and Validation Services are carried out at each IC-ENC office, to benefit from regional expertise, knowledge, time-zone operation and language. Distribution and Revenue Management Services are concentrated centrally at HQ.

Each IC-ENC office is hosted by a national Hydrographic Office, offering economies of scale, staffing and technology advantages, meaning IC-ENC remains a low cost operation. IC-ENC's governance rules mean that IC-ENC is autonomous, and all member nations of IC-ENC can contribute equally to strategic, financial and policy decision making. These rules, and other operating principles, are defined in the IC-ENC Cooperation Arrangement.

IC-ENC's Strategic Objectives

Section	Ref	Strategic Objective
Strategy & Management	SM1	Maintain effective corporate governance and business functions
	SM2	Maintain financial sustainability
	SM3	Increase Membership and ENC coverage
	SM4	Develop the IC-ENC Global Operating Structure
	SM5	Maintain effective relationships with other organisations
People	P1	Deliver Training and Capacity Building to ENC Producers
	P2	Develop and Maintain the IC-ENC International Team
Commercial	C1	Deliver the Distribution service, via the VAR companies
	C2	Deliver the Revenue Management service
	C3	Develop ENC sales rules - non-navigation
	C4	Promote and protect the IC-ENC corporate brand
Validation Service & Technology	T1	Deliver Production Support Services
	T2	Deliver an independent ENC Validation Service
	T3	Maintain and improve IC-ENC Information Technology

STEERING COMMITTEE

IC-ENC held its 17th Steering Committee meeting in September 2016 in Amsterdam. 34 out of 40 members were represented, along with several observer organisations, thus demonstrating the size, structure and importance of the Committee. Its purpose is to set IC-ENC strategic direction, services provided to the member nations, and the budget.

The meeting started with a preliminary day of informal discussions on a wide range of ENC issues. Following this, SC17 Day 1 was dominated by a strategic review of IC-ENC, focussing on the core services and strategic plan. SC17 Day 2 concluded with a list of priority tasks for IC-ENC to focus its resources on. The group recognised the progress made by IC-ENC under the two year Chairmanship of Dr Mathias Jonas, and unanimously elected Captain Marc Van der Donck RNLN to the position for the next two years.

A short Steering Committee meeting will be held alongside the IHO Assembly in Monaco, April 2017, to capitalise on the fact that almost all IC-ENC members will be in the same location. It will give IC-ENC the opportunity to progress key issues, and prepare for the way ahead for a successful main meeting in September, which will be held in Cape Town, South Africa.

Plans are in place to improve the meeting structure now it has reached the size it has. It will cover three full days, and include variations such as smaller working groups for parts of the days, to focus on specific items. In addition, the pre-meeting paperwork will be more condensed, use a common template, and clearly define the required decisions. This will ensure the maximum benefit is achieved as a result of bringing the Committee together.

CORE SERVICES

ENC VALIDATION

The IC-ENC Validation Team conducted 10,116 validations during 2016, and during December, IC-ENC performed its 100,000th validation!

The breakdown of validations are shown below, along with the number of ENC files which were returned for improvement action before release, with the 2015 figures for comparison.

	Updates	New Editions	New Cells	Total
No. of Validations	7,351	2,141	624	**10,116**
Returned for Improvement Action Before Release	207	97	114	**448**
Percentage of validations (2015 figures in brackets)	2.8% (3.8%)	4.5% (6.9%)	18.3% (17.3%)	**4.4% (5.4%)**

New Data Releases During 2016

IC-ENC has worked closely with the Panama Canal Authority to ensure that new ENCs were released in coordination with the Panama Canal Expansion Project in June. This team effort ensured the new ENCs were on the bridges of the first ships to use the new locks!

IC-ENC also worked closely with the Maltese Hydrographic Office by providing face-to-face support in July. This resulted in the release of Malta's first 5 ENCs.

IC-ENC also introduced the Malaysian and USA data into the IC-ENC folio during 2016. As of week 01/2017, there are 7,330 ENCs in the IC-ENC folio - a net change of 1,536 over the year.

'Value Added' Validation Report Feedback Comments

IC-ENC monitors the types of feedback comments made in the validation reports. The results for 2016 are:

| No Action	Advisory	Critical
8,125	1,543	448

This means about 2,000 ENC files received feedback designed to improve the WEND database from the perspective of the mariner. The large number of 'no action' reports are primarily for small update files.

ENC Data Release

IC-ENC's weekly output of files to the Value Added Resellers continues to vary considerably each week. In 2016, the largest exchange set produced included 296 cells, and the smallest included just 109 cells. The table below shows the lowest, highest and average numbers of files released on a weekly basis during 2016, with the 2015 averages for comparison.

	Minimum	Maximum	2016 Average	2015 Average
Updates	88	210	149	152
New Editions	12	109	61	29
New Cells	0	22	11	18
Combined	109	296	221	199

The number of files released on a weekly basis during 2016 is shown in the graph below:
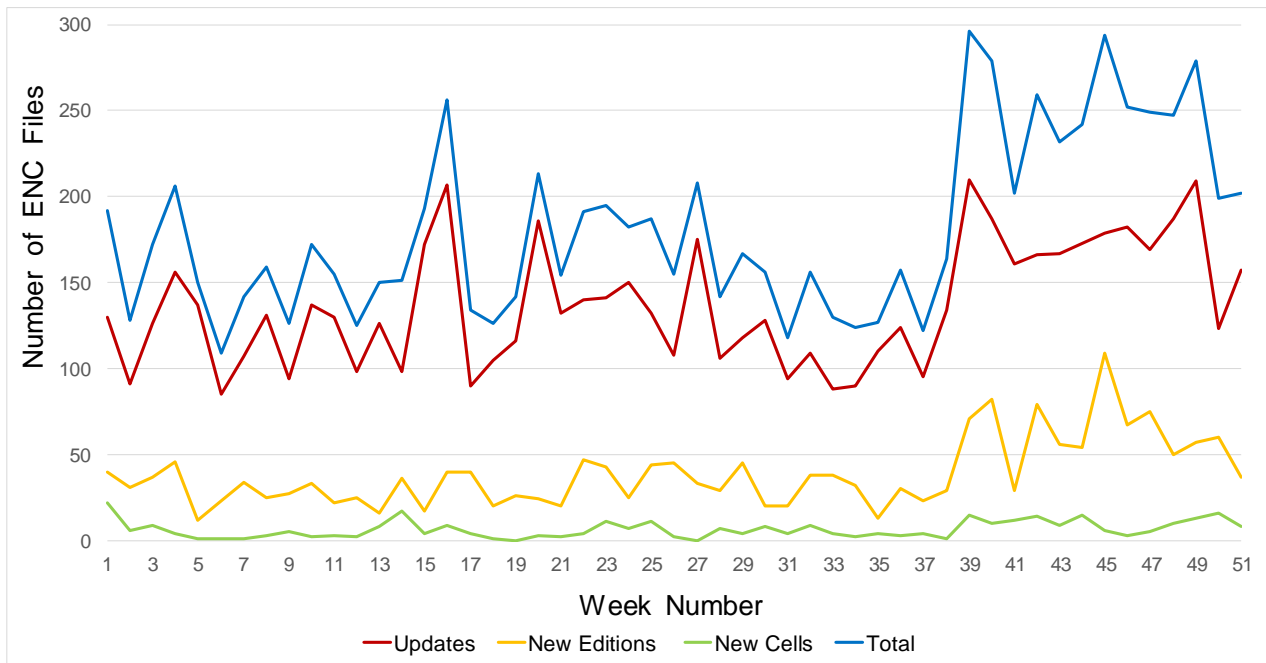
2016 Key Performance Indicator Results

IC-ENC reports validation completion time performance to the Steering Committee, with a target to complete 95% of each of the three job types within the timescales below:

Update	3 days	These Key Performance Indicator targets have been set to recognise that it is more important for the safety of navigation to release ENC change information (update or new edition file) than release brand new ENCs.
New Edition	5 days	
New Cell	10 days	

The 2016 results are:
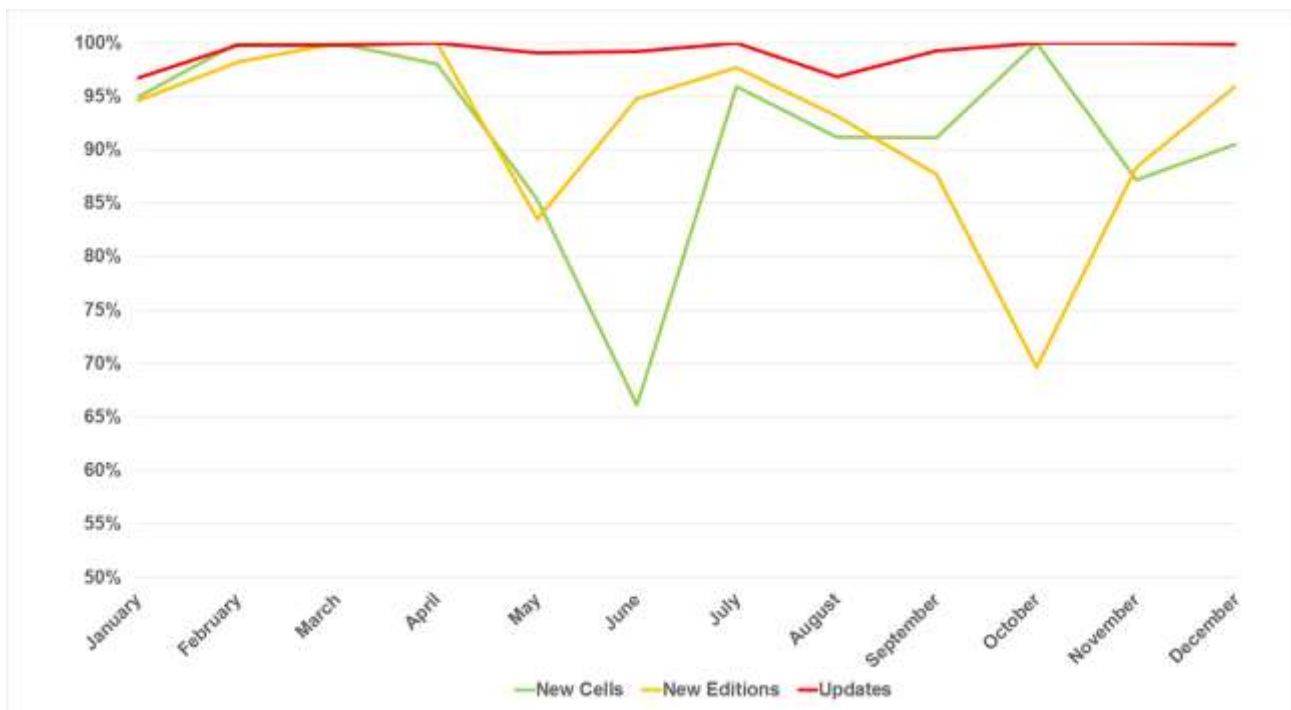
May and June's dip in base cell results is because of unexpected staff absences. October's dip in New Edition results is due to the large increase in validations (see graph above). The Update validation target was achieved each month.

ENC Validation Training

IC-ENC delivered three ENC Validation training courses in 2016, providing direct support to 52 individuals from 31 producing nations. These courses were held in Asia, Europe and Latin America with the support of three members. This provided excellent benefits in terms of training facilities, site visits, guest speakers and regional expertise. The Latin America course included verbal delivery in Spanish, proving very valuable for the trainees.

The training courses also act as workshop-type events, allowing open discussions between individuals about various topics such as data capture and data consistency.

In addition, IC-ENC also provided bespoke ENC Validation training for our newest member, Tunisia. The training took place at IC-ENC UK for one week, and was provided by IC-ENC Training Manager, Mike Hawes. As a result of this training, Lt Wael Elbedoui was able to take his widened ENC knowledge and understanding back to his home office, put this into immediate action, and soon after IC-ENC was able to release six Tunisian cells to the IC-ENC Value Added Resellers.

Technical Conference

IC-ENC held its first Technical Conference in April 2016 in Taunton, UK. A significant portion of IC-ENC members were represented; 39 delegates from 33 nations, achieved by the Steering Committee decision to fund attendance costs. The conference was a great success, and built on the work of the previous Technical Experts Working Group meetings, whilst adjusting for IC-ENC's increasing size and scope in terms of membership and ENC experience. It was only so successful due to the active participation of every delegate.

The level of attendance also illustrated that once a group decision is agreed by the IC-ENC membership, this represents the technical opinion of 40 ENC Producers, which can be a useful and powerful lobbying voice in areas such as technical standards development.

One of the main focuses of the conference was to introduce S-100 and S-101 to the group, and to provide familiarisation for all members, as some were unaware of the developments. The group also assessed the challenges ahead, and drafted a work plan and timeline which will developed further via a new smaller S-101 Working Group.

Other key achievements concerning ENC Production (S-57) included:
- Agreed improvements to the Validation Feedback Report, actioned within the new IC-ENC Data Management Database
- Best practice discussions and decisions on encoding items such as data filtering, CATZOC, SCAMIN and ENC Scheming
- Improved understanding of the IC-ENC Errors Database in terms of access, function, content and improvements. An electronic copy was provided to all attendees, and a reminder of the online (most current) access route

In addition, the conference provided a great platform for collaboration, sharing of knowledge an ideas, and building strong working relationships between IC-ENC staff and IC-ENC members.

The Steering Committee recognised the value of this event by approving funding for a second Technical Conference. It will be hosted by IC-ENC member Denmark, in Copenhagen, week commencing 22nd May 2017. Invitations and registration details will be issued to all members in early 2017.

ENC Sales

IC-ENC distributes its combined members' ENC database through companies known as Value Added Resellers (VARs), who are able to offer comprehensive maritime end-use services that bring together various navigational products into one package.

By working with VARs, IC-ENC is able to offer the mariner a choice of services, each incorporating a wide range of ENCs, which are available through a variety of well-known international distribution outlets.

To ensure a representative base line for comparison, an (annual equivalent) ENC sales volumes measure is used which is not affected by price rises but does take account any increase in the IC-ENC folio.

The analysis below shows Sales Volume growth since the beginning of 2012 to the end of 2016.

QUARTERLY ENC SALES VOLUMES
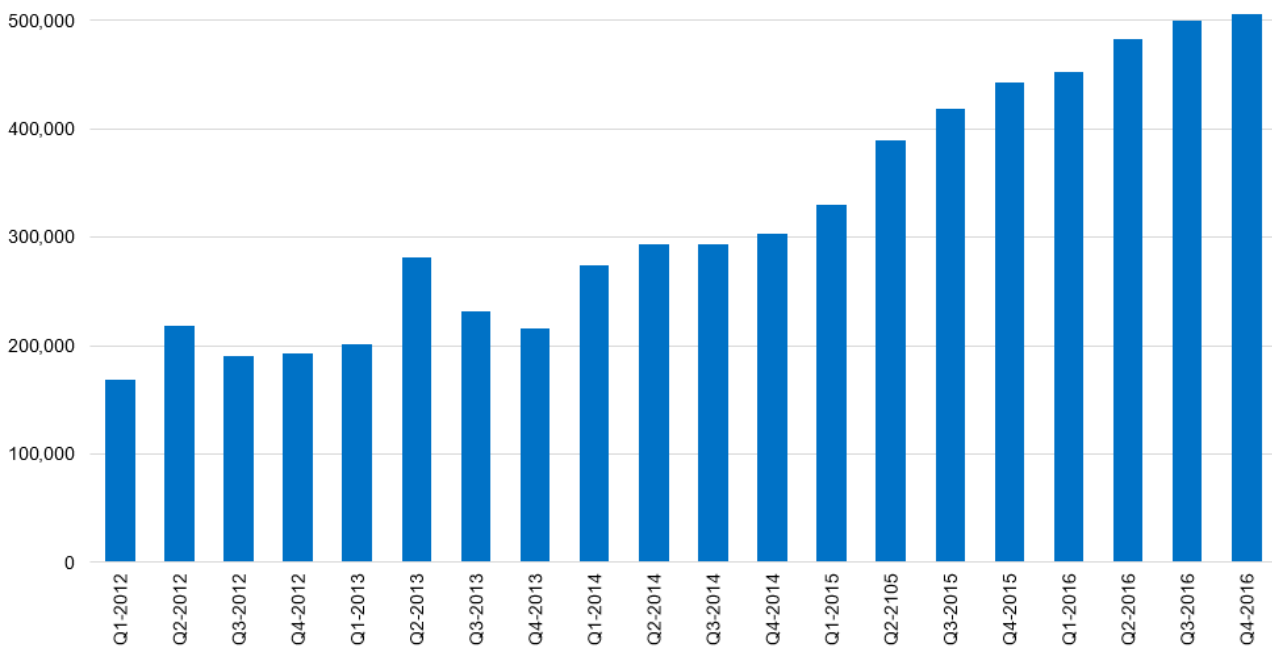
2013 year on year growth — 21.1%
2014 year on year growth — 25.0%
2015 year on year growth — 35.8%
2016 year on year growth — 22.8%

It was always clear that the mandatory carriage requirements of Electronic Chart Display and Information System (ECDIS) (implementation schedule 2012—2018) would see the fastest period of uptake in vessels sailing with ECDIS as the primary source of navigation. The strong growth demonstrated in the bar chart is in line with our forecasts and corresponds with the amounts of vessels, by class, falling within the schedule by compliance date.
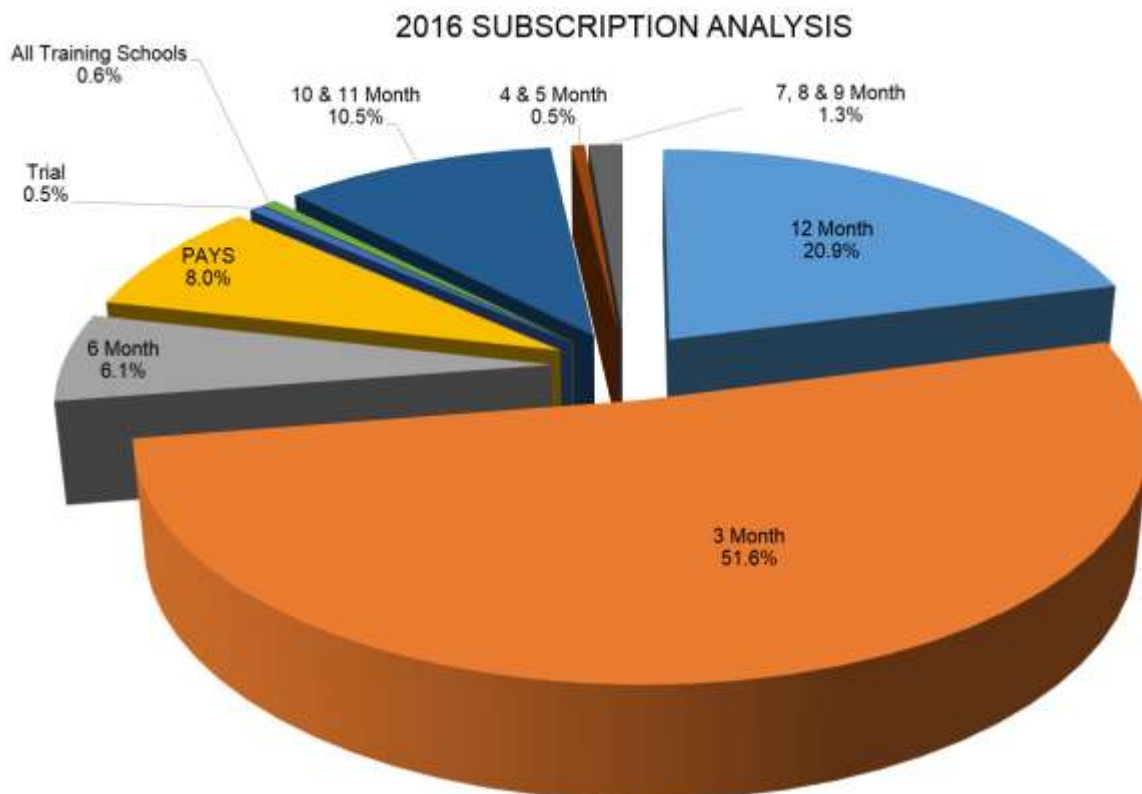
ENC Subscriptions

ENCs used by SOLAS vessels for navigation are enabled through subscriptions. There are various subscription options:

- **"Standard" or (pre-paid) Subscription**
  - Defined subscription period (3 – 12 months)
  - Purchased prior to voyage or planning

- **Pay As You Sail (PAYS) Subscription**
  - A vessel registers for a PAYS service
  - All ENC's are available for planning purposes
    - Since January 2016 a quarterly planning fee is charged, upfront, and recurring whilst the vessel remains registered on a PAYS service
  - The PAYS system tracks and records the vessels movements
  - 3 month PAYS subscription is recorded for all cells intersected by the vessels track

Since the introduction of IC-ENC's Real Time Reporting (RTR) system, IC-ENC has been able to analyse the ENC sales subscriptions to a far greater level of detail than ever before. A good example of this is demonstrated below by the subscription analysis pie chart, which shows the current dominance of shorter term subscription periods. This is a marked change from as recently as 3 years ago when longer subscription periods dominated.


The relatively small proportion of PAYS subscriptions is significant. These have been compared to previous years, and show strong growth over the past couple of years, albeit from a very small base.

Reporting of VAR Sales

IC-ENC's Real Time Reporting (RTR) business system enables IC-ENC to be more responsive to its members' reporting needs and to enable fast and detailed auditing of VAR sales. One of the prime functions of RTR is to automatically manage the ENC sales rules and procedures, and to highlight any aspects that require more thorough investigation and analysis by the team.

IC-ENC UK (HQ) manages all aspects of the VARs sales reporting, auditing, invoicing and the revenue collection process. An itemised sales report is produced, in arrears, on a quarterly basis, for each IC-ENC member and the revenue generated from these sales is then paid accordingly to each member by IC-ENC.
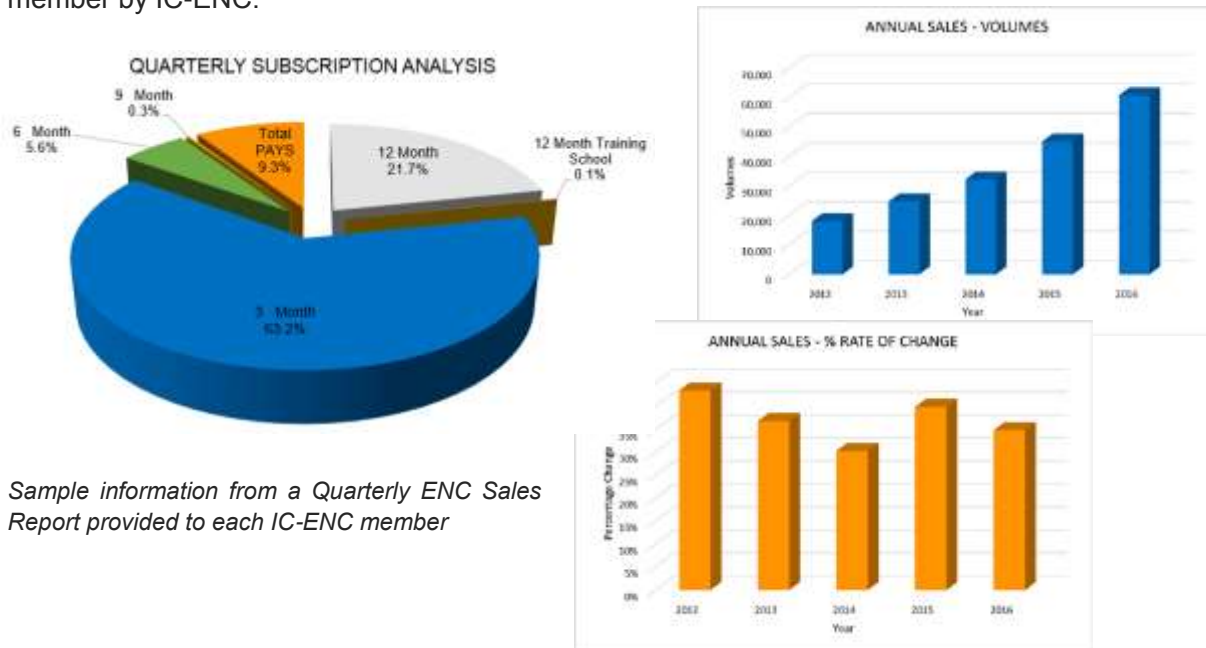
Sample information from a Quarterly ENC Sales Report provided to each IC-ENC member

IC-ENC Financial Model

Since 2014, IC-ENC has had the same stable and equitable, cost recovery financial model with its members which is based upon a fixed fee of $1 being retained by IC-ENC from each 12 month subscription sale. Shorter subscription periods (3 month to 11 months, Training School and PAYS subscriptions) attract lower pro rata fixed fees (11 and 12 month are charged at the same rate as 10 month). See the example table which is based upon a fictitious example IC-ENC member which has chosen $15.00 for its wholesale price.

IC-ENC (example) MEMBER WHICH HAS CHOSEN A $15.00 WHOLESALE PRICE FOR 12 MONTH ENC SUBSCRIPTIONS (IC-ENC Fixed Fee $1)													
Subscription Type / Periods													
	3 Month	**4 Month**	**5 Month**	**6 Month**	**7 Month**	**8 Month**	**9 Month**	**10 Month**	**11 Month**	**12 Month**	**PAYS (3 Month)**	**Training (3 Month)**	**Training (6 Month)**	**Training (12 Month)**
Volume/ Factor	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.00	1.00	0.30	0.15	0.30	0.60
Member revenue	$4.20	$5.60	$7.00	$8.40	$9.80	$11.20	$12.60	$14.00	$14.00	$14.00	$4.20	$2.10	$4.20	$8.40
IC-ENC Fee	$0.30	$0.40	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00	$1.00	$1.00	$0.30	$0.15	$0.30	$0.60
Whole-sale Price to VARs	**$4.50**	**$6.00**	**$7.50**	**$9.00**	**$10.50**	**$12.00**	**$13.50**	**$15.00**	**$15.00**	**$15.00**	**$4.50**	**$2.25**	**$4.50**	**$9.00**

CASE STUDY: VENEZUELAN ENC SUCCESS

Over 2016, Venezuela has more than doubled its ENC folio, from 18 to 41. Commander Daniel Alberto Rojas, Head of ENCs, Division of Cartography, Venezuelan Navy, provides a few word on his experiences below. He attended the IC-ENC Technical Conference in April, and ENC Validation Training course in September. During both, Daniel's interest and effort to learn the production and validation processes in order to improve Venezuelan ENCs was clear.

During the Training course, Daniel had the opportunity to work with the various ENC Validation software used by IC-ENC. Since returning to his office, he has presented a successful business case to acquire one software tool internally. Through this new software, his team's greater understanding, IC-ENC support, and very importantly Daniel's leadership, Venezuelan cells are now achieving acceptance for distribution at the first validation.


Daniel comments:

"At the start of the year I began my management of the Division of Cartography. I saw very difficult challenges ahead to achieve and position ourselves in a good level of production of ENC. But through interacting with IC-ENC, everything became easier: from my experience of the Steering Committee to my experience of sharing with the group that is dedicated to helping ENC production teams (the IC-ENC international validation team).

I record my appreciation of all the work we did this year together with IC-ENC, whom I consider a group of capable people, professionals, and now friends.

It was the IC-ENC Technical Conference and my interest in learning and taking forward the production of ENC, which means I now love the work I do. There is the commitment, the will, and the clarity of the goals to be fulfilled, which has allowed my work team to consolidate the production process. In addition, the IC-ENC ENC Validation course in Panama has allowed me to develop my learning and gain the tools required to achieve the goals.

Today we are closer to reaching the full coverage of our sea. I am taking on new challenges in front of the team I lead, and we are all facing the challenge of ensuring the safety of navigation. I thank the entire IC-ENC team, especially Mike, the Data Manager, and the Latin America Validator Bruna who have been an important support throughout this process."
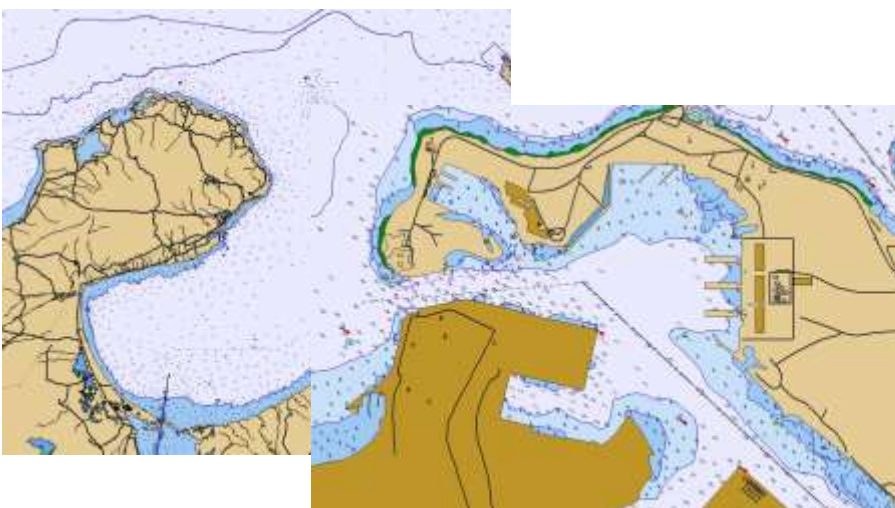
REGIONAL OFFICE—VALIDATION ROLE

IC-ENC now has four fully functioning validation offices around the globe. IC-ENC Australia (Wollongong) and IC-ENC UK (HQ, Taunton) have been in place for some years. During 2016, IC-ENC Latin America (Brazil) and IC-ENC North America (Washington) reached full operating capability. The combination of strategically placed office locations enable IC-ENC to provide an almost 24 hour 'human' service to members, as well as localised language support (English, Portuguese, Spanish), and regional expertise and understanding. The regional office concept also supports further IC-ENC organisational benefits, such as business continuity advantages.
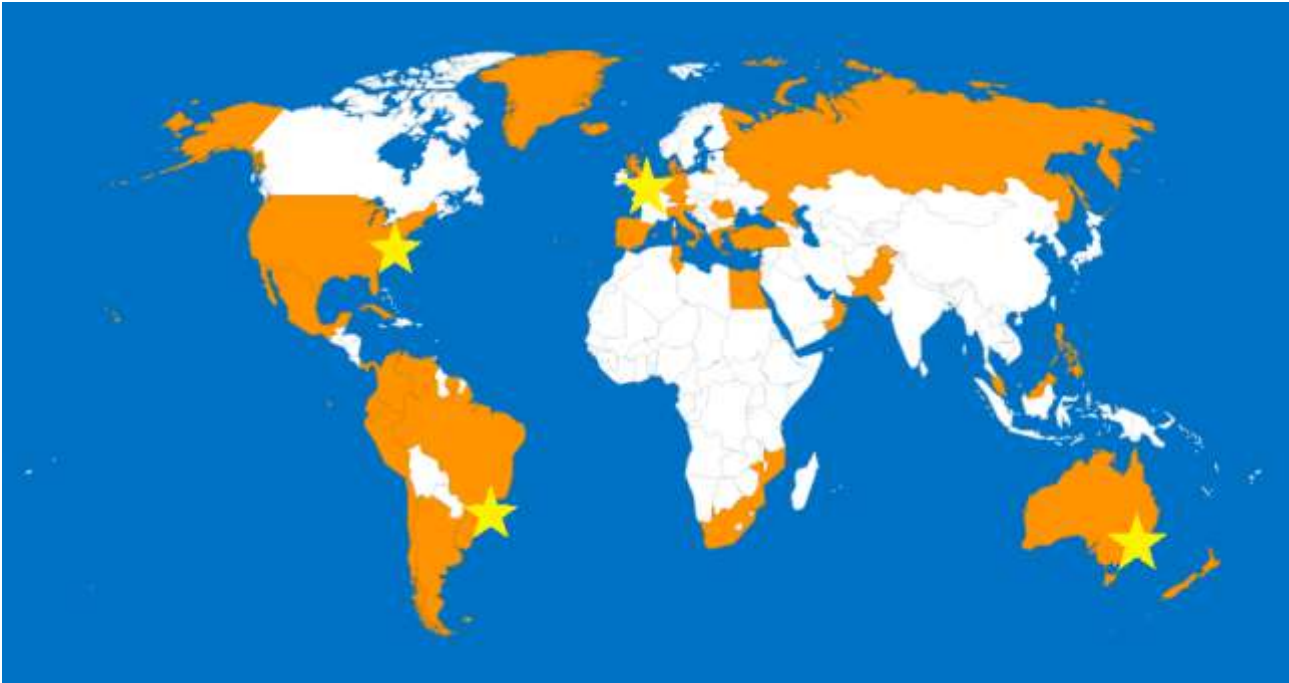
IC-ENC Membership and Office Locations

Cloud Technology Assisting the Regional Office

David Durston, IC-ENC Australia Validator, shares his views on how Cloud Technology assists the Regional Offices:

"As Cloud Technology opens up global communication, IC-ENC has embraced and implemented the technology into our daily working practices. Each Regional Office is able to communicate with IC-ENC UK (HQ) and the other Regional Offices directly through the cloud and has access to secure remote desktops. This allows for:

- All Regional Offices to work with the same versions of validation software
- All Regional Offices to use the same working practices and understand their importance in their day to day validation. Their results and performance can all be monitored and periodically assessed from HQ.
- All Regional Offices have access to Steering Committee approved policies that drive our working practices giving all validators greater understanding of our mission and purpose.
- Global calendars and correspondence folders allow all offices to be readily in touch with the issues of all members states.
- Face to face meetings occur regularly maintaining positive communication and continual focus towards IC-ENC's Core Services"

Initial Training to Full Competence

Initially, the four Validators from the IC-ENC Latin America and IC-ENC North America offices received face-to-face training at IC-ENC UK for three months at the start of 2016. Here, the Validators worked closely with IC-ENC Data Manager and Validation team to develop their knowledge and understanding of IC-ENC processes and ENC Validation.

At the end of March, their initial training was signed off by the IC-ENC Data manager, and they all attended the IC-ENC Technical Conference to explain their role and to build relationships with representatives from the IC-ENC membership.

"The training covered a wide range of scenarios that we would encounter as a validator. The IC-ENC staff were always willing to help, answer questions, and provided us with the support we needed to become successful ENC Validators. Regular communication and support has continued since we returned to our home offices via Skype and Google Hangout"

Once the Validators returned to their home offices, remote training and ongoing support was given as they began to validate national and regional data. As their knowledge and experience developed, they proceeded to validate globally, with less support required from IC-ENC UK.

Today, all the Validators have earned 'Competent Validator' status and are proficient at validating global ENC data. This allows IC-ENC to be resource adaptable when faced with surges in the quantities of ENCs received for Validation, without losing the advantages that regional knowledge brings.

"I know that I am providing a valuable service to the IC-ENC customer, and ultimately to the ENC user"

Since the completion of their training, the Validators have been able to take part in other IC-ENC activities. For example, Bruna was able to assist during the ENC Validation training course held in Panama by delivering the course in Spanish, a great advantage for our Spanish-speaking nations who attended the course.

Bruna Pinheiro delivering training in Panama

Bruna Pinheiro, Jenny Thacker, Ana Mileze and Rob Ciepiela

Ensuring Quality in the ENC Validation Service

In 2015, IC-ENC achieved its own ISO9001 Quality Management accreditation from the auditing body DNV. This has now been extended to formally include IC-ENC Australia in September 2016. IC-ENC Latin America and IC-ENC North America are to follow before the end of March 2017.

NEW CHAIRMAN: FIRST 100 DAYS

"It has been a privilege and honour to be elected as the Chair of IC-ENC. During my first 100 days as Chair, I have had the opportunity to get to know IC-ENC at various levels.

Firstly, **IC-ENC as a RENC**. IC-ENC is firmly established in accordance with the WEND Principles. It has become very effective as a RENC, and as such, IC-ENC has come a long way to meet its own vision as the leading supplier of services for validation, harmonisation and global distribution of ENCs. The RENC to RENC harmonisation with PRIMAR is effective. Although there are eight fully functioning VARs, a large portion of IC-ENC's sales are currently attributed to a single VAR.

Secondly, **IC-ENC as a group of collaborating sovereign nations**. This group has grown over the years and is now over 40 in number. On the one hand, this clearly demonstrates the attractiveness of the IC-ENC concept. On the other hand it is also harder to find a common denominator and to remain agile as a group. Does a one size solution still fit us all?

Thirdly, **IC-ENC as a group of dedicated professionals**. The staff of IC-ENC is fully committed to IC-ENC core tasks. Not only in the UK headquarters, but also in the regional offices, such as the newly formed Latin American office in Brazil. I have been able to visit two of the four offices so far, and I was impressed. One should not underestimate the added value IC-ENC staff provides within the value chain from hydrographic survey to ENCs in ECDIS on board.

The first 100 days have proven to be interesting, sometimes unexpectedly so. The IC-ENC construct has demonstrated to be a resounding success. Herein also lies its challenge. Like any construct, IC-ENC needs maintenance. This is likely to be work in progress for the coming period."

IC-ENC Chairman and General Manager visit the IC-ENC Latin America office, December 2016

LOOK AHEAD TO 2017

January

IC-ENC Validator training, UK

New DMD 'goes live'

RENC-RENC cooperation meeting, USA

February

WEND WG7, USA

March

ENC WG, Italy

April

IHO Assembly/Exhibition, Monaco

Extraordinary Steering Committee meeting, Monaco

May

Technical Conference, Denmark

June

IRCC, Suriname

July

Steering Committee Discussion Papers circulated

August

September

Main Steering Committee meeting, South Africa

October

November

December

This year promises to be another full one for both IC-ENC, and its members. The focus is on maintaining the four core services whilst addressing the priority tasks set by the Steering Committee.

Our international validation team will convene in UK in January, primarily for training in the new Data Management Database that will 'go live' by the end of this month, achieving the highest priority SC17 task.

The RENC-RENC Co-operation meeting, and WENDWG meeting follow. These are important events to maintain the working relationship with PRIMAR and to influence international aspects of the WEND based on IC-ENC's status as a centre of ENC excellence. Both of these help IC-ENC's efforts for '**Better ENCs**' across the entire WEND database. After all, most vessels don't just limit themselves to IC-ENC's members' waters!

A Training Needs Analysis of our members will produce a proposal on IC-ENC's future training/capacity building/ENC support activity. The second Technical Conference, to be held in May in Denmark, will be a key event for IC-ENC technical staff and ENC Producers.

New members have declared their intention to join IC-ENC during 2017. These nations range in size and ENC production status; some large existing national folios will be incorporated into the IC-ENC database at different times in the year, whilst other interested nations are at the beginning stages of production. Both types have resource considerations for IC-ENC.

IC-ENC will attend the IHO Assembly in April, with an exhibition stand close to, but separate from, PRIMAR. This is an invaluable opportunity to meet with our existing members.

Our main Steering Committee in September will be in Cape Town. A new style and format is planned to give maximum benefit over the three days. The shorter meeting in Monaco in April will have paved the way for this.

Departure of Richard Fowle

All of these activities will be achieved without IC-ENC's longest serving team member. As you will probably know, Richard Fowle retired at the end of 2016. He was part of the team that set up IC-ENC back in 2002; his ENC knowledge and experience is vast and his commitment to improving ENC quality is well know across the hydrographic community. We all wish him well for his next adventure!

2016 FINANCIAL ACCOUNTS

What has each $1 funded in 2016?

IC-ENC is a **not—or—profit** organisation. Its costs are funded by IC-ENC retaining a fixed fee for each ENC sold. The amount of the fixed fee is set by the SC, taking account of the financial position (deficit or surplus) and future forecasts. The SC has set the fixed fee amount to **$1.00**.

During 2016, each $1 retained has been used by IC-ENC in the following ways:

- Staff wage costs, 36 cents
- Work Plan Activities, 38 cents
- Information Technology, 7 cents
- Accommodation and Support, 4 cents
- Contribution to operating balance, 15 cents

Full 2016 Financial Results

TYPE	APPROVED FORECAST (December 2015)	Revised SC17 forecast (following Q2)	Revised forecast (following Q3 + CL2016_17)	ACTUAL RESULTS	COMMENTS
COSTS					
Staff wages	-$834,000	-$792,000	-$753,806	-$751,503	
Work Plan Activities	-$541,000	-$680,000	-$768,506	-$791,253	Significant investment by IC-ENC in new Data Management Database ($329k SC approved build costs, $332k actual. IC-ENC CLs 2016/15 and /17 refer), and other additional costs as a result of short notice re-location of SC17 meeting.
Information Technology	-$180,000	-$165,000	-$154,130	-$142,000	
Accommodation and Support	-$120,000	-$94,000	-$82,763	-$82,784	
Financials	+$4,500	+$12,000	$20,820	$24,878	Interest earned from IC-ENC bank account, minus banking costs
TOTAL COSTS	**-$1,670,500**	**-$1,719,000**	**-$1,738,385**	**-$1,742,662**	
REVENUE					
IC-ENC fixed fee value	$1	$1	$1	$1	Set at SC16, through to end of 2018
Annual Sales Volume	$1,925,600	$1,930,000	$1,930,000	$1,941,554	
Annual IC-ENC Revenue	$1,925,600	$2,033,000	$2,033,000	$2,049,783	Includes Pay As You Sail Planning Fee
Total ENC Revenue Returned to Members		$25,105,000	$25,105,000	$25,907,779	Each member's ENC revenue is paid quarterly or annually, at their preference.
IC-ENC Financial Position					
2016 Annual Balance	$255,100			$307,121	2016 revenue minus costs. Positive in-year balance.
IC-ENC Operating Balance	$1,694,109			$1,746,129	At end of 2016.

2017 FINANCIAL ACCOUNTS

TYPE	FORECAST ($)		COMMENTS
Costs	Known/ Allocated	Reserved/ Contingency	
Staff wages (known)	$711,000		UK and Aus office staff. Continues to be no cost of Brazil or US staff to IC-ENC
Staff wages (contingency)		$101,000	Based on cost of replicating Aus office staff cost if increase to IC-ENC staff required because of increasing validation workload requirement (i.e. new members join). Any activity will be subject to SC approval
Work Plan Activities (known)	$548,000		
Work Plan Activities (contingency)		$100,000	Budget contingency for outcome of Training Needs Analysis, any activity will be subject to SC approval.
Information Technology	$210,000		Global IT infrastructure, support, software licenses (validation and non-validation). Not DMD tool.
Accommodation and Support	$117,000		Includes known office costs ($29k) plus forecast estimate of revised costs of UKHO support (not to be confirmed until early 2017)
UKHO government +3%	$26,000		SC17 Finance Report refers.
Financials	(+)$9,000		
COSTS (known)	**$1,603,000**		
COSTS (contingency)		**$201,000**	
TOTAL COSTS 2017	**$1,804,000**		
IC-ENC Revenue			
IC-ENC fixed fee value	$1		
2017 Sales Volume	$1,823,000		Includes known changes to ENC sales reporting routes. Assumes no new members during 2017
2017 IC-ENC Revenue	$1,923,000		Includes PAYS planning fee
Member HO Revenue			
Member HO Revenue	$25,113,000		To be paid to IC-ENC members during 2017
IC-ENC Financial position			
2017 Annual Balance	$119,000		Positive in year balance, 2017 IC-ENC Revenue minus 2017 Total costs
IC-ENC Operating Balance	$1,865,000		At end of 2017

IC-ENC's budget is approved by the Steering Committee during December of the previous year. Financial performance is reported mid-year to the Steering Committee, for review in the September meeting, and on occasion by IC-ENC Circular Letter.

IC-ENC has a significant Operating Balance. The Steering Committee will decide how to use this. It will be re-invested in the IC-ENC organisation or returned to members through the Extraordinary Settlement process, or some of both. The Extraordinary Settlement process can be considered similar in principle to a company's 'extraordinary dividend' payment.

IC-ENC MEMBERSHIP AND FOLIO STATUS: Week 01/17

COUNTRY	Member since	CODE	Wk1 2014	Wk1 2015	Wk1 2016	Wk 1 2017	2016 Net Change	2016 % Change	2016 NE issued	2016 Updates issued	Comments
Argentina	2005	AR	61	66	70	72	2	2.9%	21	102	
Australia	2005	AU	842	841	843	843	0	0.0%	200	1153	
Bahrain	2002	BH	4	4	8	8	0	0.0%	0	0	
Belgium	2002	BE	7	7	7	7	0	0.0%	5	52	
Brazil	2008	BR	131	136	137	145	8	5.8%	61	118	
Chile	2004	CL	186	197	220	253	33	15.0%	4	59	
Colombia	2010	CO	36	36	56	61	5	8.9%	5	175	
Cuba	2013	CU	8	15	21	23	2	9.5%	1	2	
Denmark	2013	DK	130	149	219	254	35	16.0%	99	290	
Ecuador	2008	EC	0	0	14	24	10	71.4%	0	1	
Egypt	2014	EG	0	0	17	21	4	23.5%	4	11	
Germany	2002	DE	154	155	159	160	1	0.6%	55	463	
Greece	2003	GR	285	287	291	300	9	3.1%	4	154	
Iceland	2005	IS	70	70	71	71	0	0.0%	16	14	
Israel	2015	I1	0	0	0	0	0	n/a	0	0	
Italy	2014	IT	0	253	255	259	4	1.6%	47	823	
Malaysia	2014	MY	0	0	0	85	85	n/a	21*	91*	New to IC-ENC folio
Malta	2016	MT	0	0	0	5	5	n/a	1	10	First ENCs released this year
Mexico	2005	MX	99	116	128	131	3	2.3%	0	12	
Mozambique	2004	MZ	0	0	0	0	0	n/a	0	0	
Netherlands	2002	NL	71	85	139	139	0	0.0%	67	420	
New Zealand	2008	NZ	201	230	241	273	32	13.3%	41	99	
Oman	2015	OM	0	0	0	0	0	n/a	0	0	
Pakistan	2005	PK	5	6	6	7	1	16.7%	2	1	
Panama - Can	2015	PA	0	0	0	7	7	n/a	6	2	First ENCs released this year
Panama - Mar	2015	PA	0	0	10	9	-1	-10.0%	3	1	
Peru	2006	PE	122	122	124	125	1	0.8%	9	66	
Philippines	2014	PH	0	0	17	17	0	0.0%	1	27	
Portugal	2002	PT	89	89	91	90	-1	-1.1%	11	109	
Romania	2013	RO	1	3	6	6	0	0.0%	0	3	
Russian Fed	2005	RU	430	443	477	488	11	2.3%	20	152	
Slovenia	2014	SI	0	0	1	1	0	0.0%	0	2	
South Africa	2002	ZA	56	57	57	57	0	0.0%	5	72	
Spain	2002	ES	165	228	248	269	21	8.5%	19	413	
Suriname	2014	SR	4	4	4	4	0	0.0%	1	8	
Tunisia	2016	TN	0	0	0	6	6	n/a	0	7*	New to IC-ENC folio
Turkey	2004	TR	259	259	266	268	2	0.8%	39	281	
Uruguay	2011	UY	16	26	27	27	0	0.0%	1	95	
Utd. Kingdom	2002	GB	1467	1558	1566	1578	12	0.8%	787	1107	
Utd. States	2016	US	0	0	0	1196	1196	n/a	394*	645*	New to IC-ENC folio
Venezuela	2006	VE	17	18	18	41	23	127.8%	17	3	See case study, page 13
TOTAL			4916	5460	5814	**7330**	**1516**	26.1%	**1552**	**6300**	* Part year maintenance figures

IC-ENC International Team

Back left to front right

Mike Hawes, Data Manager/Training Manager (UK) • **Alison Vale**, Validator (UK) • **David Durston**, Validator (Aus) • **James Harper**, General Manager (UK) • **Scott Drayton**, Assistant Technical Manager (UK) • **Richard Northover** Commercial Manager (UK) • **Rob Ciepiela**, Validator (US) • **Max Summers**, Validator (UK) • **Dan Garratt**, Senior Data Validator (UK) • **Laura Tyzack**, Validator (UK) • **Richard Fowle**, Technical Manager (now retired) • **Aaran Champion**, Validator (UK) • **Ana Mileze**, Validator (Br) • **Liz Hahessy**, Future Standards Manager (UK) • **Bruna Pinheiro**, Validator (Br)• **Jenny Thacker**, Validator (US)

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