



## The National Museum of Computing – Briefing for applicants wishing to become a Trustee

Thank you for your interest in applying to become a member of the Board of Trustees for The National Museum of Computing. We look forward to learning more about you and your motivations for joining our Board.

We'd like you to be well-informed about our museum before you make a formal application. This briefing includes a short introduction to the history of the museum and to our activities. It is taken from our "Forward Plan" for 2023-5. It also includes a summary of our formal Annual Accounts for the 2022-23 Financial Year to give you an insight into how we generate our income and our operating costs. To learn about our current activities, see more detail about our exhibits, projects and events, please spend some time exploring our web site at [www.tnmoc.org](http://www.tnmoc.org).

We would also ask that you come and visit our museum to see it at first hand and see how we engage with our visitors, run our learning programme and meet our mission to bring to life the history and ongoing development of computing for inspiration, research, learning and enjoyment for the benefit of general and specialist publics of all ages. On the day of your visit, you are welcome to ask if our Museum Director or any of the Trustees are in the building and available to meet with you to introduce yourself.

In terms of making an application we would like you to provide us with the following information:

1. A brief career summary / *curriculum vitae*.
2. A short statement of what you would contribute to the Board in terms of experience, skills, and strategic thinking.
3. A short statement of what motivated you to make an application, in terms of personal goals, your interest in computing history and Science, Technology Engineering and Mathematics. More generally, promoting diversity and community engagement.
4. If you wish, copies of references letters or names of people we can approach to learn more about your suitability for the role.

You are welcome to provide these in written form or as a short audio or video recording if you prefer.

We will collect applications for review after the closing date and invite those for whom we see a good mutual fit to come to the museum for an informal interview, to meet members of the Board, and our Museum Director.

We appoint our Trustees for a renewable three-year term. All our Trustees are volunteers and are expected to meet their own out of pocket expenses. We ask our Trustees to attend up to 8 formal Board meetings a year plus additional involvement in executive committee work and special projects. The Board normally meets on Thursdays, generally alternating between on-site and virtual meetings. Committee and Project work is generally through virtual or hybrid meetings but some additional attendance at the museum outside of board meetings is expected. Through these additional activities we expect our Trustees to engage proactively with our staff and volunteers.



If you have further questions that are not answered in this note or the associated documents, please do not hesitate to get in contact with the Chairman of the Board whose contact details are below.

Dr Andrew Herbert OBE FREng  
Chairman of Trustees, The National Museum of Computing

Email: [trustee-recruit-apr23@tnmoc.org](mailto:trustee-recruit-apr23@tnmoc.org) Tel: 07803 904197



## **INTRODUCTION TO TNMOC**

### **Who Are We?**

The National Museum of Computing (TNMoC) is an exceptional national asset - an impressive and successful effort from many committed and talented individuals. It has a highly engaged and committed staff that makes visits to the site particularly informative and enjoyable.

In the landscape of British museums TNMoC is in some ways atypical through its major emphasis on the operation and demonstration of its machines. In this respect, it recalls some of the industrial museums that have been opened in earlier periods - for instance, the ones devoted to industries like spinning and weaving.

However, there is an important difference. Many of these older museums were built to memorialise vanished industries and to honour the history and working experiences of the communities where they were located. Over time, the number of former employees and experts who were the key resource for the guides, maintenance staff and volunteers have often declined and are hard to replace.

By contrast, The National Museum of Computing represents an industry with fascinating historical origins but one which is still active and evolving, with no sign of slowing down. This means that the problems which have afflicted many of the classical industrial museums will not occur here since the software and IT industries will surely continue generate a pool of informed and skilled people - a continuing resource for guides, volunteers, and explainers.

This policy of actively demonstrating and operating the historic exhibits of TNMoC gives the exhibits a special value and meaning.

### **Statement of Purpose**

Our mission is to bring to life the history and ongoing development of computing for inspiration, research, learning and enjoyment for the benefit of general and specialist publics of all ages.

More formally, the objects of our charity are:

- to establish and maintain a museum in England and Wales for computing and its history for the benefit of the public;
- thereby to collect, hold, preserve, maintain, arrange, restore, conserve, interpret, protect, present and develop artefacts and other material relating to computing;
- to promote the study and practice of computing and its history, and to advance knowledge and education of computing for the benefit of the public;
- to develop and sustain activities to stimulate interest in computing and its history;
- such other charitable purposes beneficial to the public consistent with the Objects set out here as the Trustees shall in their absolute discretion determine.

‘Computing’ shall include matters concerned with the history and furtherance of computer science and technology and the design and development of computing systems and applications; and shall



include any form of computing system.

## **History**

The museum grew out of early efforts to save Bletchley Park and commemorate the work of wartime code-breakers and the technology innovations in electronic means of code-breaking and its influence on subsequent post war developments in British computing. It comprised a group of retro computing enthusiasts who assembled the initial collection and a team building a reconstruction of Colossus, a large electronic code-breaking machine from 1944 which was used to break messages transmitted by radio from Hitler's bunker in Berlin to German military headquarters across Europe.

The museum was incorporated as an independent entity on 30th March 2005 and registered as a Charity on 6th June 2005.

In May 2024 we achieved the status of full Arts Council England accreditation as a nationally styled museum – Arts Council accreditation is the UK museum industry standard for museums and galleries.

The museum is based in H Block on the Bletchley Park estate – in buildings originally erected to house the Colossus cryptanalysis machines and thus probably the world's first 'computer suite'. Management of the Bletchley Park estate and commemoration of the wartime code-breakers resides with the Bletchley Park Trust (BPT) who operate their own museum on another part of the site and who lease H Block to TNMoC on a commercial basis. The two charities are completely independent and only bound by a landlord-tenant relationship.

## **Public Access**

We presently open four days a week to the general public (Tuesday, Thursday, Saturday, Sunday) and most bank holidays.

We sell a variety of ticket types: day tickets, annual tickets, family/group tickets, guided tour tickets, event tickets, concessionary tickets.

In the 2019/20 Financial Year (i.e., before Covid-19 lockdowns) we sold a total of 15,652 tickets for a total attendance of approximately 17,000 visitors.

For the 2021/22 Financial Year (i.e., after re-opening in June 2021 following Covid shutdown) we sold a total of 7,290 tickets for a total attendance of approximately 8,000 visitors.

For the 2022/23 we have seen a steady recovery in numbers, having sold a total of 10,958 tickets for a total attendance of approximately 12,000 visitors.

In addition to ticket sales, we had additional visitors through our education programme and through hosted corporate events.



The number of people attending educational events was as follows:

2019/20 (pre-Covid)	1,383
2021/22 (re-opening after Covid)	4,470
2022/23	7,081

The number of people attending corporate training and events activities was as follows:

2019/20 (pre-Covid)	600
2021/22 (re-opening after Covid)	476
2022/23	1,473

During 2021/22 during closure due to Covid we run a number of events online:

2021/22	1060
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Giving approximate annual totals of:

2019/20 (pre-Covid)	19,000
2021/22 (re-opening after Covid and online)	14,000
2022/23	20,500

Our reach is international: while the majority of our visitors come from the UK, we have welcomed visitors from Europe, Russia, USA, Japan, Singapore and Australia.

### **Educational Activities**

We open every weekday during school terms to deliver our Education Programme for schools and colleges, strongly linked to the National Curriculum for GCSE and A-level computer science. A typical school visit includes a tour of the museum by a trained education guide, followed by a series of hands-on activities in our dedicated classroom facilities. We provide a selection of activities from which individual groups can select those that meets their needs. We are uniquely able to animate important concepts contained in the National Curriculum using our exhibits and draw on the expertise of our guides to cover technical topics in depth. Alongside school visits we offer “Digital Futures” days which provide a similar offering to smaller groups and individual students. In 2021/22 we offered 12 of these, each accommodating 120 students.

We also have an online educational offering, developed during Covid-19 to allow us to continue to serve the education sector during lockdown. This continues and makes the programme accessible to schools unable to travel to the on-site programme.

In 2021 the museum was presented by the Heritage Education Trust with the Sandford Award for Heritage education, in recognition of its engaging, inclusive and diverse learning programme for STEM (Science, Technology, Engineering and Mathematics) subjects.

The programme was extended in 2022 to add an offering for primary school aged children.

To make our education programme more widely accessible, we offer “Home Educator” days and “Relaxed Opening” events for families with neurodiverse members. In addition, we run popular “Bytes Festival” events during the school holidays, and monthly Sunday morning “STEM Ambassador Kids” events offering practical hands-on activities for families.



## **Corporate Training and Events**

Corporate Events are hosted, typically for a single day, in one of our classrooms. The agenda for the day depends upon the organisation's needs and usually includes a tour of the museum and potentially other activities such as lectures, quizzes and escape room challenges based on our exhibits and objects in our collection. Some of our corporate clients use the museum as a venue for off-site strategy and team-building meetings, others use us as a venue for training and technical workshops, and for these groups we often provide specialist lectures and/or unique hand-on experiences. There has been a significant growth in these events following Covid as companies and organizations who support "working from home" look for interesting venues to host offsite team meetings. These corporate events also often lead to close partnerships with companies, who go on to become financial sponsors of the museum and whose staff engage with us as volunteers.

## **Online Presence**

To remain connected with our audiences during Covid-19 we launched a suite of new online activities, including an innovative state-of-the-art 3D virtual tour which we offered in both self-guided and hosted versions, regular online lectures, quizzes and "ask the experts" online discussions. We reinvigorated our presence on social media and put our shop online.

All these measures helped in part to establish new revenue streams, to attract a new audience and have now become part of our overall public offering: in 2021/22, we presented a total of 16 online and live streamed talks. We continue to live stream events and talks to reach audiences unable to travel to the museum.

## **Exhibitions**

We pride ourselves on being able to offer something new to returning visitors. Alongside our long-standing exhibits, we use our "pop-up gallery" space to tell new stories in which we may loan objects from other venues or showcase untold stories using objects from our own collection. These short-term exhibitions typically last 6 to 12 months. In 2022, the short-term exhibitions included: the history of computer science teaching at the Open University, a celebration of the tenth anniversary of the release to market of the first Raspberry Pi computer (developed with the support of the Raspberry Pi Foundation) and a history of computing at the BBC in recognition of the BBC's 100th Anniversary.

Since the history of computing is an ongoing story rather than just a moment in time, we look to renew our long-standing exhibits on a 3–10-year cycle. For example, in 2023, we replaced an elderly exhibit about the role of computing in Air Traffic Control with a new exhibit about computers and telecommunications, in partnership with The Communications Museum Trust.

## **Events and Workshops**

In addition to exhibits we put on a steady flow of events to attract visitors to our museum. These are often of a commemorative nature. During 2022 these included celebrations of the 40<sup>th</sup> anniversary of the Sinclair Spectrum home computer, the 50<sup>th</sup> anniversary of the founding of Atari, a leading computer games company, the 60<sup>th</sup> anniversary of the ICT 1300 computer (we hold an ICT 1300 nicknamed "Flossie" in our reserve collection) and the 200<sup>th</sup> anniversary of Charles Babbage's Difference Engine.



Alongside commemorative events we host regular technical workshops for those who want to learn new skills, such as our “Valve Workshop” a two-day course in designing and building circuits using thermionic valves, as used in early computers, before the era of transistors and microelectronics. We run regular recruitment events to attract and introduce new volunteers to our museum.

### **Media Presence**

Through our proactive public relations activity, media attention reporting of our museum generally strong with a steady flow high-profile stories appearing in print, on television and radio and on social media. We regularly welcome film, television and radio crews to use our exhibits and consult with our subject experts to tell important stories about the development of computing. TV coverage in 2022 included BBC Radio 6, BBC News, BBC Look East (regional news programme), ITV Anglia news, (radio) Buckinghamshire Live.

### **Volunteers and Supporters**

Curation, display, interpretation, guiding, restoration and reconstruction projects in our museum benefit from the skill and enthusiasm of our dedicated volunteers, just over 50 in number who operate under the umbrella of the TNMoC Volunteer Association, led by their chairman and committee. These TNMoC volunteers are augmented by a further 15 belonging to the Turing-Welchman Bombe Rebuild Trust and the EDSAC Replica Project Trust who care for and demonstrate their exhibits on loan to TNMoC).

Within the volunteers, a small group, due to their technical background, specialist knowledge and engineering skills, act as sub-curators for significant parts of our collection.

Alongside the volunteers, we enjoy the backing of our Supporters’ Club with some 240 members who contribute financially to the museum through both paying a membership fee and making donations during fundraising campaigns.

### **Collections**

In total we estimate our collection comprises over 76,000 objects, only a fraction of which can be displayed at one time. It is the largest computing collection in the UK and comparable in size to leading computing museums in other countries such as the Computer History Museum in Silicon Valley. The reserve collection is held in good quality offsite storage a short distance from the museum. During 2021/2022 a restoration workshop space was created at the storage facility to enable larger conservation and restoration projects to be undertaken by our volunteers. The management of the collection is headed up by our Senior Curator, supported by volunteers.

Many of our objects are unique and of national importance: they tell the not so well-known stories of the significant British technical contribution to war time codebreaking, the early development of the modern digital computer through to the modern computing milieu of Internet and mobile devices.

We continue to collect, both historical items to fill important gaps in our collection and also contemporary objects in order to be able to tell the continuously evolving story of computing and its impact upon society.



## Restoration and Reconstruction Projects

From the reconstruction of Colossus in the founding years of the museum, uniquely in the UK, we continue to undertake ambitious projects in the restoration, conservation and reconstruction of significant computing systems. Two major current projects are the reconstruction of the 1949 Cambridge EDSAC machine – the world’s first practical modern electronic digital computer – and the conservation/restoration of an Argus 500 computer system recovered from Dungeness Nuclear Power Station.

## Research

We offer a Senior Research Fellowship. The present holder is Dr Mark Priestley, an eminent computing historian who has authored many books and papers on the subject. His paper, with T. Haigh, on “The Colossus and Programmability”, *IEEE Annals of the History of Computing*, 40(4):5-27, relating to one of our principal exhibits, was awarded the 2019 Bernard S. Finn IEEE History prize.

We award an annual Honorary Fellowship to recognize an individual who has made a significant contribution to the understanding of computing and computing history. In 2021 the Fellowship was awarded to Professor Brian Randell of Newcastle University whose many accomplishments include co-writing a compiler for Algol 60, an early high-level computer programming language, and who also was the first to make public knowledge of the hitherto secret Colossus code-breaking machine. In 2022 the Fellowship was awarded to Rory Cellan-Jones, the well-known BBC technology journalist and author. The 2023 Fellows were Eben and Liz Upton in recognition of Eben’s leading role as the inventor of the Raspberry Pi computer and their joint roles in creating the Raspberry Pi Foundation, a major computer science education charity with world-wide impact. The 2023 Award was given to Mike Woodger, who worked on the NPL Pilot Ace, one of the earliest computers in the U.K. and who was a major contributor to Algol 60, an early computer programming language whose influence can still be seen in many programming languages used today. As part of the award, the Honorary Fellows are invited to give a public lecture at the museum.

In addition to these formal research activities, a considerable volume of research is undertaken by our volunteers as part of learning how to maintain and operate our working exhibits, in the conservation and return to working status of donated items and in documenting the context in which objects in our collection were created and used, by who, for what purpose and their societal impact. This recovered and generated knowledge is recorded in our online Google GSuite document repository.

The museum is unique in being able to use its expertise to undertake major reconstructions of lost objects from the history of computing. We are particularly proud of our reconstruction of the wartime Colossus code-breaking machine and our work in partnership with the EDSAC Replica Project to build a reconstruction of the world’s first practical modern electronic digital computer, the Electronic Delay Storage Automatic Calculator at Cambridge University dating back to the earliest days of the computer age – the original ran its first program in May 1949. Both these projects have involved significant research, as very little of the design documentation of the originals has survived, in both cases mostly just photographs. Museum volunteers have developed a forensic ability to recover engineering designs using appropriate technology and methods to the period in which the original was built.

Alongside the physical objects in our collection, we have an extensive Technical Library and a growing Archive. The technical library contains printed items and digital media, comprising text books, technical manuals, engineering diagrams and software. The archive contains collections of selected





computing journals and magazines, and papers from individuals and companies, covering the commercial and social history of computing. Two current archive projects are: (1) the accession of the personal papers and records of Tony and Margaret Sale, founders of the museum, covering the museum's early history and including Tony's extensive collection of papers about code-breaking machines and related technologies, and (2) the accession of the personal papers of Peter Hilton, an eminent mathematician noted for his contributions to homotopy theory and for code-breaking during World War II.

We use our acquired knowledge about the objects in our collection and the broader technical and historical knowledge of our volunteers, research fellow and network of friends in academia and industry to answer a steady flow of research questions from external researchers and the general public.

### **Other Museums**

We enjoy links to other museums and organisations concerned with the history of computing. We support the smaller Centre for Computing History in Cambridge, England by maintaining one of their machines, offering technical advice, and taking part in some of their events. We have both loaned objects out to other museums and loaned objects in, such as the WITCH computer from the Birmingham Science Museum, which we restored to working condition.

We are in association with and represented by two of our trustees on the committee of The British Computer Society's Computer Conservation Society, the UK membership organization for computing professionals with an interest in computing history. This relationship provides us with access to a wider pool of experts above and beyond our own staff, volunteers and supporters. We have informal but important and proactive links with The Computer History Museum in California, USA and the Heinz Nixdorf Museum in Paderborn, Germany. We are supporting a recently founded computing museum in Poland with advice on technical matters and museum practice. We have transferred to them a number of items that were otherwise due for disposal from our collection.

We are a member of the Association of Independent Museums (AIM).

We are registered with the University of Leicester's Museum Department to host placement students as part of the MA in Museum Studies programme commencing in July 2023.

### **Financial Status**

The museum enjoys a healthy financial position with reserves standing over £416,000 at the end of March 2023, our last formal annual accounts. Income fell considerably during Covid but is gradually recovering and the museum continues to post a positive contribution to reserves each month after deducting operating costs. We were fortunate to secure a donation of £500,000 in January 2023 in support of a project to repair the external fabric of our museum and make internal improvements to facilitate a better visitor experience and more flexibility in use of our available space.

Extracts from last Annual Accounts (full accounts available from Companies House)

**THE NATIONAL MUSEUM OF COMPUTING**

**CONSOLIDATED AND CHARITY BALANCE SHEET**

**YEAR ENDED 31 MARCH 2023**

	Note	Group 2023 £	Group 2022 £	Charitable Company 2023 £	Charitable Company 2022 £
<b>FIXED ASSETS</b>					
Tangible fixed assets	10	21,382	25,223	19,728	23,156
Investments	11	-	-	2	2
		<u>21,382</u>	<u>25,223</u>	<u>19,730</u>	<u>23,158</u>
<b>CURRENT ASSETS</b>					
Stocks	12	5,270	7,624	-	-
Debtors	13	45,674	44,027	93,248	65,013
Cash at bank and in hand		363,642	293,462	315,104	270,462
		<u>414,586</u>	<u>345,113</u>	<u>408,352</u>	<u>335,475</u>
Creditors: amounts falling due within one year	14	(19,245)	(27,034)	(11,359)	(15,331)
<b>Net current assets</b>		<u>395,341</u>	<u>318,079</u>	<u>396,993</u>	<u>320,144</u>
<b>NET ASSETS</b>		<u>416,723</u>	<u>343,302</u>	<u>416,723</u>	<u>343,302</u>
<b>FUNDS</b>					
Unrestricted	15	397,606	331,385	397,606	331,385
Restricted	16	19,117	11,917	19,117	11,917
<b>TOTAL FUNDS</b>		<u>416,723</u>	<u>343,302</u>	<u>416,723</u>	<u>343,302</u>

THE NATIONAL MUSEUM OF COMPUTING

CONSOLIDATED STATEMENT OF FINANCIAL ACTIVITIES

YEAR ENDED 31 MARCH 2023

		Unrestricted Funds £	Restricted Funds £	Total Funds 2023 £	Total Funds 2022 £
	Note				
<b>INCOME</b>					
Donations		68,724	7,200	75,924	114,994
Other trading activities	2	396,802	-	396,802	271,230
Income from Investments	3	347	-	347	16
<b>TOTAL INCOME</b>		<b>465,873</b>	<b>7,200</b>	<b>473,073</b>	<b>386,240</b>
<b>RESOURCES EXPENDED</b>					
Expenditure on raising funds	4	44,642	-	44,642	27,329
Expenditure on Charitable activities	5	355,010	-	355,010	330,581
<b>TOTAL RESOURCES EXPENDED</b>		<b>399,652</b>	<b>-</b>	<b>399,652</b>	<b>357,910</b>
<b>NET INCOME FOR THE YEAR</b>		<b>66,221</b>	<b>7,200</b>	<b>73,421</b>	<b>28,330</b>
<b>RECONCILIATION OF FUNDS</b>		<b>331,385</b>	<b>11,917</b>	<b>343,302</b>	<b>314,972</b>
Total funds brought forward					
<b>TOTAL FUNDS CARRIED FORWARD</b>	15/16	<b>397,606</b>	<b>19,117</b>	<b>416,723</b>	<b>343,302</b>