Science organisations in the digital and Al age

Presentation to ISC Conference Nick Scott, May 2023



What we will cover today

Three areas where digital and AI offers opportunities and challenges for science organisations (like yourselves)

- 1. Greater digital connections between people, data, robots and things
- 2. New sources of value and a faster speed of change
- 3. Power dynamics, organisational structures and operational models

ISC member survey on digital: some key findings

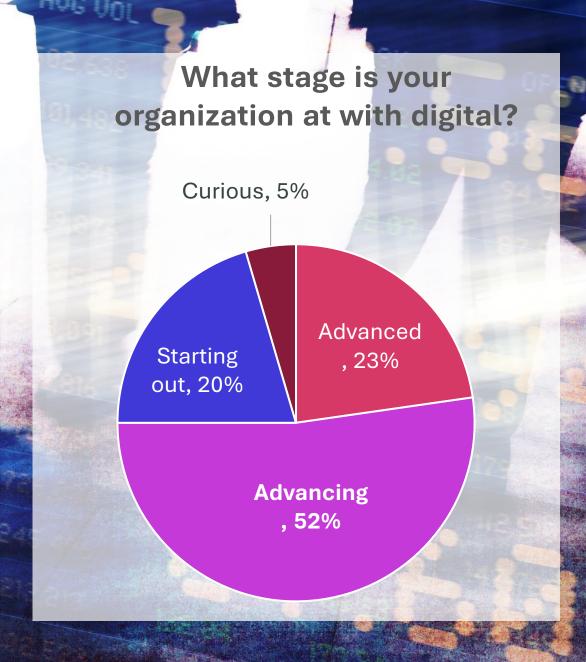
ISC case studies



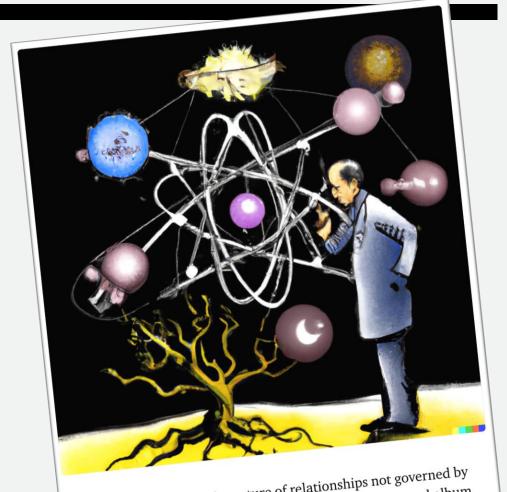
Key survey finding:

Most members surveyed feel they are advancing in digital.

These members see digital as part of their strategy, but they've not embedded it yet. They are actively investing in technology and developing their skills.



Area 1: More and deeper digital connections between people, data, robots and things



"a scientist ponders the nature of relationships not governed by restrictions in time or space (in the style of a heavy metal album cover)"



Nick × DALL-E

From struggling to connect to struggling to contextualise a connection

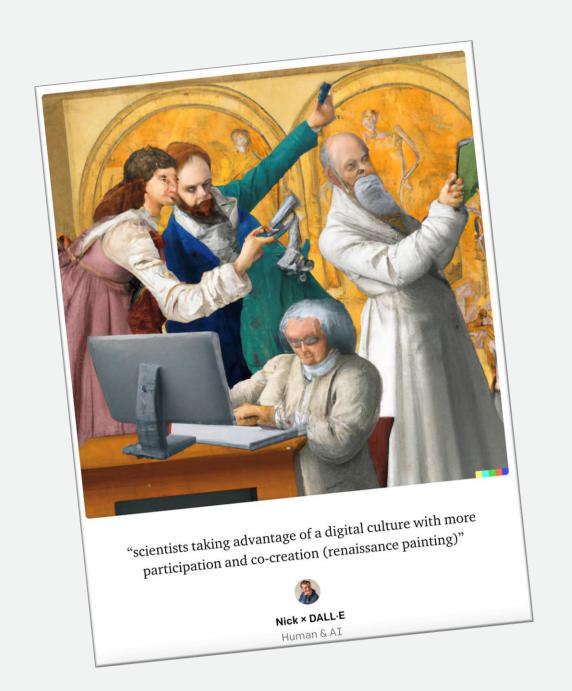
A changing trade-off between reach and richness

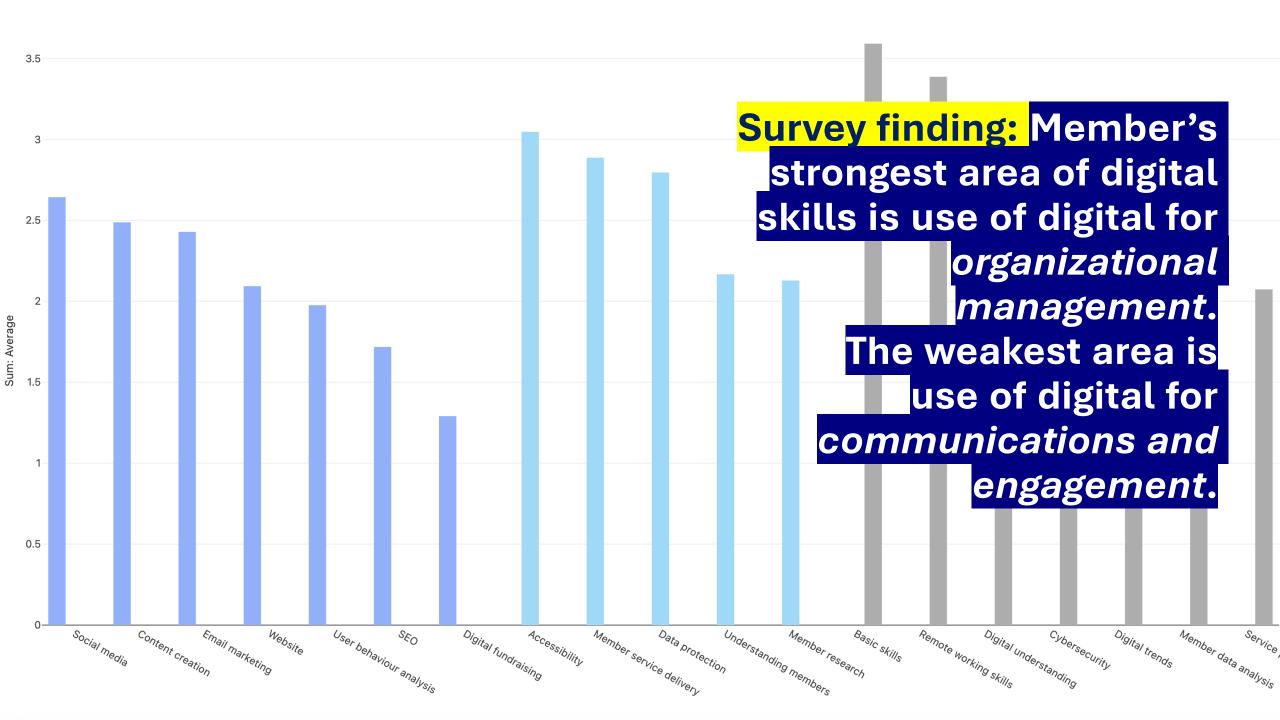


the international science council using digital to connect with ever more scientists, in more ways than ever before - and the feel closer to them than ever before (in the style of Rembrandt)"



Crowds with participation, co-creation and cooperation





Area 2: Changing sources of value, new types of services and a faster speed of change



Economies of abundance and "the long tail" of valuable knowledge and resources

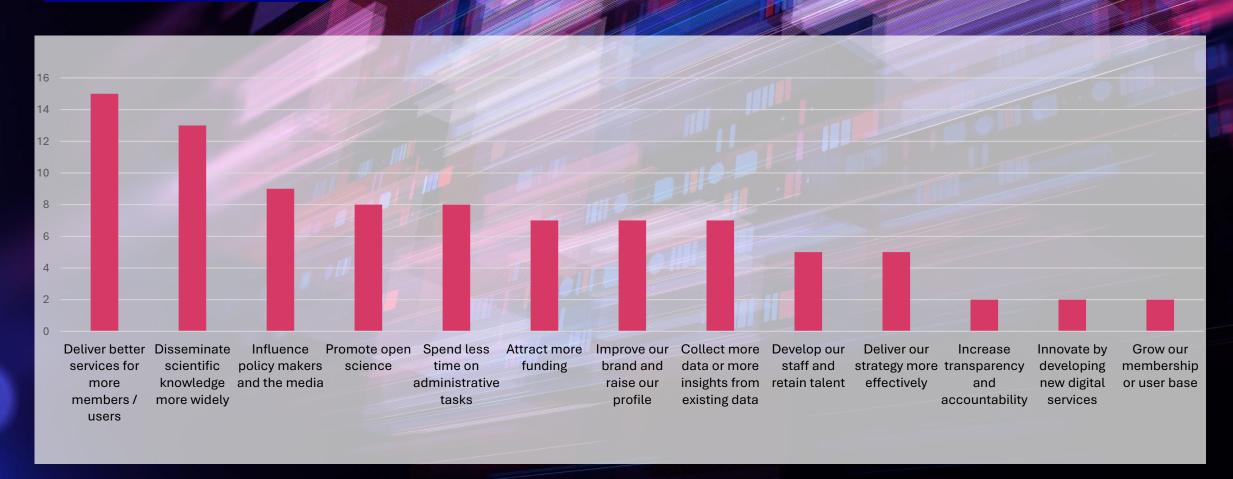


Data and technology driven services with huge scale and zero marginal cost

Not just value you provide ... the network provides value too

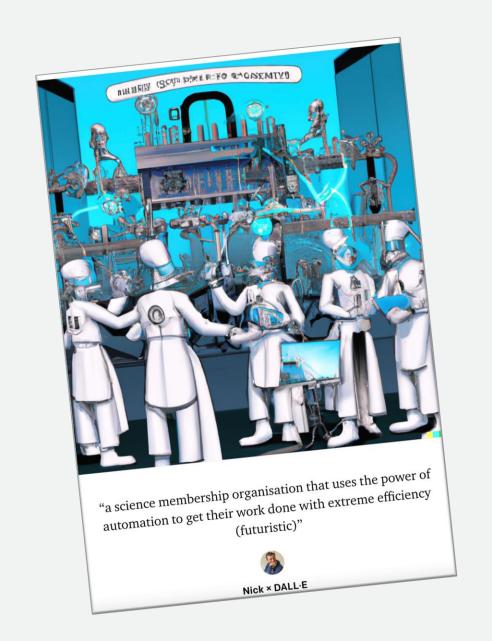


Survey finding: Members see digital as important to their future plans in a wide range of areas... including improved member services, better knowledge sharing and increased policy influence

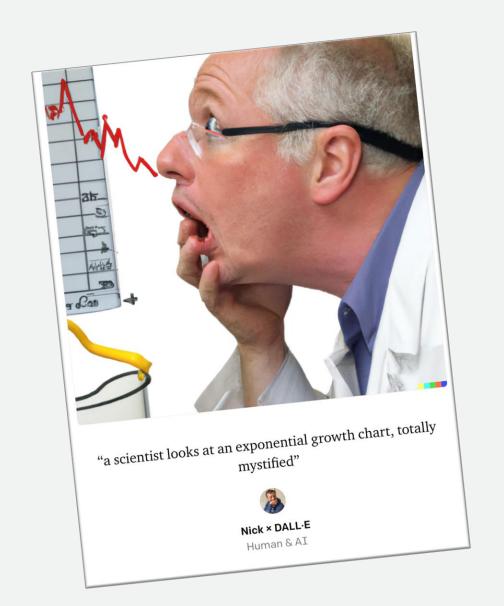


Area 3: changing skills, organisational structures and operational models

Technology, data management, artificial intelligence and automation: changing core skills



Exponential change that our brains find hard to foresee





"a group of scientists connects together to create a decentralised online network of science organisations bound by smart contracts (in the style of salvador dali)"



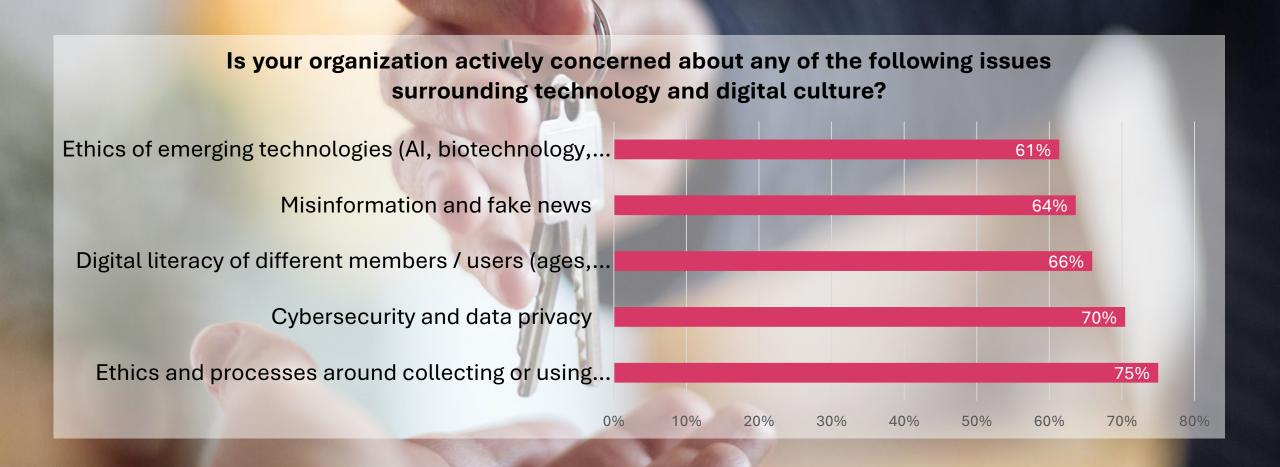
Becoming more agile through collaboration, decentralisation and autonomy



What are the biggest challenges your organization faces in relation to digital? (pick 3 only)

Fostering digital literacy among staff and members / users	2204
	23%
A need to upskill or hire staff	23%
Collecting, managing and using data	20%
Ensuring all members / users can access digital services	18%
Ensuring digital security and privacy	18%
Finding funds to invest in the devices, software or infrastructure needed	18%
Finding time to plan / focus on digital	16%
Maintaining public trust in science	14%
Some aspects of our organization are more digitally mature than others	14%
Balancing scientific rigour with digital speed and agility	11%
Staff burnout and workload from intense remote working demands (eg Zoom fatigue, information overload)	11%

Survey finding: Ethics and processes for collecting member data are a key concern for most ISC members





In order to progress with digital, what skills, knowledge or behaviour would your organization need to improve in the next 18 months?

Confidence to use data to inform decisions or increase our impact, 5

Understanding of service design, 6

Digital leadership skills (e.g. being more collaborative), 10

Ability to adapt quickly to change, 10

Understanding of digital tools, 17

Ability to develop and embed a good digital strategy, 11

A clear vision of what we could achieve with digital, 12

Understanding of digital trends and how they affect your organization, 14

Inspirations: how ISC members are using digital to become stronger organisations

"Our aim is to be as digital as possible"

The Nigerian Academy of Science



The COVID 19 pandemic forced the Academy take a big leap, trying to digitalize almost everything ... "I don't think it ever even occurred to

"I don't think it ever even occurred to us that we could have a council meeting digitally"



The Academy's aim for its digital programme is organisational efficiency.

"We want to be more efficient and to serve our community better".



Most of the Academy's activities are carried out digitally.

Council meetings, webinars, conference registration, grants administration, accounting and voting processes are all online.



The biggest challenge has been unstable network connectivity and unreliable power supply in Nigeria. However, they are hopeful that the situation of connectivity will improve.

"We decided to abandon our traditional membership model and now there's more contact with people from outside the organisation" – The World Anthropological Union



Digital has enabled a new membership model for the Union. It has moved from a yearly fee model with regular membership drives to a more open model. People now become members when they participate in an activity.



The change aimed to include more people – those who could not participate in on-site events and those who don't want to be members in the same way, due to changing demographics in academia.



The Union has become more diverse and international as a result, with more members joining. The organisation is more outwardsfacing too: focusing on providing content of value that will attract more members.



The Union has maintained its traditional communications services, such as a regular newsletter, for those members who prefer the old model of communications and membership.

"We're building a digital gathering point for our members" The Organization for Women in Science for the Developing World (OWSD)



The OWSD website hosts membership profiles for more than 9000 members. This is great for members building their profile but also creates long-term connections with the OWSD, even once funding ends.



They are now building an algorithm that will automatically populate profiles with member activities, publications, and presentations from other websites.



National chapters complete a template whenever they conduct activities or write news items to help with reporting and collect data to work with in the future.



During the pandemic they developed a digital video training program to train members on creating videos using basic equipment, such as mobile phones. The films were compelling and are used on the website.

"We need data to be more easily accessible in a very efficient way"

Scientific Committee on Oceanic Research (SCOR)







As sensors improve and become more affordable, collecting complex data will require greater computing capability.

SCOR is creating partnerships with organisations that have the necessary storage capacity.

A key focus for SCOR is facilitating effective and sustainable digital data platforms within projects, for example by supporting a group of scientists seeking to develop a global library of underwater biological sounds.

Who maintains and is responsible for databases once projects have ended is a concern.

While some databases continue operating within their national institutions, coordination across databases can be difficult.

"Offering digital services fits right into our mission of connecting different groups of researchers"

International Political Science Association



Launched a new digital member service – IPSA Digital – in 2021, following the experience during the pandemic.



The service offers Research
Committees and Collective
members support for virtual
academic events, including virtual
conferences, workshops, and annual
meetings.



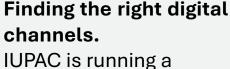
The service combines many different skills and offers, including event planning consultancy, access to technology and platforms, technical support, video production and other services.



It has become innovative platform for dialogue and networking for our global political science community

"Our hope is to find ways to engage with our members in such a way that they will engage back more."

International Union of Pure and Applied Chemistry (IUPAC)





survey to understand members' preferred channels. Ideally all channels would be used, but in practice they prioritise the most effective ones for their members.



Delivering content in the right format.

The survey also seeks to understand what format is best for members to distribute onwards. They want it to be easy for members to receive, process and send onwards to their members.



Running special focused events.

The Global Women's Breakfast is a digital event for women across the world. It has allowed IUPAC to showcase the work they do, connect directly with the community and reach more people.

"We will reach a broader audience and impact public policy by creating content specifically designed for Google"

The Royal Society



The Royal Society website caters to many different audiences. Helping them find information quickly and easily on their website can be tough.



To build their new website design, they have conducted stakeholder interviews, using the findings to refine the navigation and get buy-in from stakeholders.



But a good position in Google rankings is essential to reaching their audience.
60% of the website traffic comes from Google search.



To be found on Google, the Royal Society researches common searches and keywords. They use this to define what content format and style will get the best position.

"We focus on what we can do for members rather than just what we need from them"

The Global Young Academy



The Global Young Academy uses digital to create connections between members. It connects members to mentors with specific knowledge, interests or expertise; and members to 'buddies' for the Annual General Meeting.



They seek to understand what is easiest for members. "We try to build requests into their habits / knowledge / life – rather than them needing to re-learn things for us."



Their focus is on their member experience. "Whenever we add or change something, we try to keep the time investment for members as low as possible."



They want to create personal bonds through digital. Close collaborations (or even friendships) are a vital part of keeping members active and engaged within the network.