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International Federation of Library Associations and Institutions

TREND REPORT 2024

Facing the future of information with confidence

Professor Michael Dezuanni and Dr Kim Osman

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AUTHOR, CITATION & ACKNOWLEDGMENT

Prepared by Professor Michael Dezuanni and Dr Kim Osman with contributions from Dr Elizabeth Heck and Alexander Burton. Futures Thinking chapter prepared by IFLA. Additional scenarios contributed by Supriya Kulkarni, Beth Patin, R David Lankes, Mei Lin Fung, Daniel Nwaeze and Elinor Carmi.

Digital Media Research Centre
Queensland University of Technology
Creative Industries Precinct, Musk Avenue
Kelvin Grove, QLD 4059 Australia

dmrc@qut.edu.au
research.qut.edu.au/dmrc

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Positionality Statement

The authors recognise their positions as white university researchers living and working in a colonial system. We acknowledge that the worldviews that are reflected in this report may not reflect the lived and living experiences of many who will read this report. We endeavoured to make the report relevant to a global audience while recognising that not all trends will be reflected in all contexts. In consultation with IFLA and the expert advisory group, we hope the presented information trends will guide action toward a fairer, more inclusive and just society.

Acknowledgements

We acknowledge the Traditional Owners of the lands on which our research takes place. We pay our respect to Aboriginal and Torres Strait Islander Peoples, and to Elders past and present.

QUT Digital Media Research Centre

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IFLA is the global organisation for libraries of all types, established in 1927. It provides a unique structure for professional exchange and development across the profession globally, as well as representing the voice and interests of libraries on the global stage.

IFLA is a registered charity in the Netherlands, and works in the interests of libraries, library associations, library and information workers and the communities that they serve around the world. Its vision is of Sustainable Futures for All through Knowledge and Information.

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https://siglfoundation.org/

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Foreword by VICKI MCDONALD IFLA President 2023-2025

What does the future of information and knowledge look like? What will it mean for the way we live, interact, work and more? And importantly, what is the place of libraries in this future?

These are complex questions, and we will only know what the answers are when they happen. However, this is anything but a reason to sit still and just wait for tomorrow to come.

Library and information workers should not feel like spectators in the ongoing development of our sector, or indeed of the wider knowledge and information field that we are at the heart of. With the right tools, and the right attitude, we can not only be ready, but we can shape the future.

What is more, we need to. We are committed to meaningful access to and use of information and knowledge, not just as a right, but also a pre-condition for sustainable development for all. As a profession, we need to be active and advocate for the role of libraries in achieving the future to which our communities aspire – and they deserve.

The goal of the 2024 Trend Report – and indeed of so much of IFLA's work – is to provide the tools, structures, inspiration and energy necessary for libraries and library and information workers to face the future with optimism.

Foreword by VICKI MCDONALD IFLA President 2023-2025

Its success will be measured in the number of people, institutions, and organisations which reframe the way they think about and plan for the future, in how far it supports colleagues in their own leadership journeys, and in what it does to stimulate new thinking about how we can work better together with each other, with communities and with partners.

I am confident the Trend Report will achieve this ambition.

Such a report reflects the hard work of many. I recognise IFLA HQ for its work in the development of this Trend Report. I am also very grateful to Professor Michael Dezuanni and Dr Kim Osman from the Digital Media Research Centre at the Queensland University of Technology for accepting the challenge of leading the research and production of this report.

I also thank the authors of our additional scenarios, and all those who provided advice and input on plans and drafts. And finally, I acknowledge Stichting IFLA Global Libraries (SIGL) whose funding made this report possible.

Welcome to the future!

TREND REPORT 2024 EXECUTIVE SUMMARY

The IFLA Trend Report 2024 is the first major update of this publication since the 2013 original, and represents a key pillar of our work to support the library field to be ready to face the future. Through building the reflex and ability to integrate the future into our planning today, libraries can be more resilient and so more sustainable. This, in turn, brings benefits to the communities that libraries serve, be they the population of a local area, the students and faculty of a university, or a country as a whole in the case of national libraries.

The focus throughout is on the future of the information and knowledge environment, and how this influences – and is influenced by – what happens in other fields, such as civic life, the environment and more. This is broader than looking only at libraries and technology, but narrower than a general exploration of macro trends. In both of these cases, there is already a wide range of publications.

The report is made up of two major elements – a set of trends identified on the basis of a comprehensive review of the literature review, and then a set of scenarios which explore the different sorts of future that we could face.

The trends are as follows, with each including a range of sub-trends, ideas around more positive and negative aspects, and some questions for further reflection:

1. Knowledge practices are changing – the future holds both opportunities and challenges for improving equity in knowledge systems. This addresses questions about what we count as knowledge, the search for more diverse voices, and rising awareness of misinformation.

2. AI and other technologies are transforming society - Generative AI and new technologies are changing how we create, share and use information. This explores the implications of AI and deepfake technologies, but also the potential for technology to create new ways of engaging with and safeguarding information.

3. Trust us being renegotiated – re-establishing trust in government and media is central for our societies to flourish. This looks at trends around trust in institutions, as well as in journalism and the open movement, before tackling questions around privacy.

4. Skills and abilities are becoming more complex – people will need practical, critical and digital skills to thrive. This highlights growing skills demands, as well as the dividends that a more information literate society could bring, but also the risks to those with lower skill levels.

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5. Digital technologies are unevenly distributed – digital inclusion will increase equity. This highlights a growing digital divide, as well as the issues around the transition of services to online-only. At the same time, it also foresees the potential for a more inclusive cultural information framework.

6. Information systems are using more resources – our information needs are impacting the planet. This stresses the pressure to join the green economy, finding ways to deliver both on environmental and equity concerns. Growing eWaste and resource use are priorities.

7. People are seeking community connections – creating places to share space and resources is key to building an equitable society. This includes trends around both isolation and an intensification of local initiatives that build community. It also talks about new ways of connecting, how online communities can ben beneficial, and the impact of more flexible working patterns.

In turn, the scenarios illustrate the many different directions in which the trends, together, could take us. These include:

AI Scalpers – what happens when access to services depends on the ability to exploit AI-powered systems?

The Fuzzy Record Problem – what happens when it is no longer possible to trust in the authenticity of what we read, given editing and censorship of the record?

Room 1701 – what happens when deepfakes start to have a decisive impact on the course of democratic elections?

My Voice, My Sovereignty – what happens when the potential of the internet to drive local content creation is realised? But how do we respect the desire of Indigenous communities not to share everything?

Short form – what happens when short form video and library services come together?

Digital nations – what happens when your country only exists in the metaverse, while its citizens are scattered?

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Greenformation – what happens when libraries are places for learning about and taking action on waste?

Opt-Out – what happens when the pressure to choose between protection of personal data and access to services intensifies?

Living memory – what happens when we address loneliness and vulnerability collectively, through libraries?

Dark libraries – what happens when library services become part of the race to get the best education for children?

Additional scenarios cover:

AI-Powered Disorder – Supriya Kulkarni explores what happens when AI continues to become more prevalent in our lives, but levels of trust continue to lag.

It Might Be All the Chemtrails Raining Down on You – Beth Patin looks at what happens when misinformation runs wild, and how libraries may need to rebuild trust from the bottom up.

Nothing is Different but Everything has Changed – David Lankes asks what happens in a world where all information is suspect, and what this means for the work of libraries with individuals and communities.

Something's Rotten in the State of our Archives – Michael Oghia asks what happens when the permanence of information can no longer be counted on.

Libraries as LIFEHub – Mei Lin Fung asks what a day in the life of a librarian might look like when it is possible to combine the possibilities of technology with the community role of libraries.

All the World's a Stage – Daniel Nwaeze asks what could happen if rather than competing, it becomes possible for traditional media, social media and AI to complement each other to support healthy debate.

The People's Technology Authority – Elinor Carmi asks what happens if we let citizens' assemblies determine how technology advances.

Finally, the report shares a range of ideas for how to work with the trends and scenarios, including by adding to the examples, but also by taking different approaches to exploring intersections, and reflecting on how to plan for an uncertain future.

INTRODUCTION

Welcome to the 2024 Trend Report!

This edition is the first major update in a decade, representing a key element of IFLA's work to support the sustainability of the library field. It is made possible by the financial support of Stichting IFLA Global Libraries.

It shares the same goal as all of the other previous editions of the report – to contribute to reflection and discussion about what is to come. We need to support and encourage the practice, at all levels, of making sure that the future is present at the table when we are making our plans and developing our strategies. This is an essential step if the field is to be resilient and sustainable, given that a key characteristic – and strength – of libraries is the ability to deliver on universal rights in a way that adapts best to the needs of the community.

What is different is the ambition of this report. We have deliberately chosen not to focus specifically on libraries or on technology – there are already many excellent publications in each of these spaces. We have also not tried to produce a general mega-trends report – there are plenty of good examples of these also.

Rather, and with the support of our Trend Report advisory committee, we have chosen to look at trends in the information and knowledge space, including how these are affected by, and affect, wider society. The Report takes a comprehensive approach, aiming to explore all of the angles, building on an exhaustive review of the relevant literature.

This allows us to ask questions about how we can continue to fulfil the key mission of libraries – to guarantee meaningful access to and use of information and knowledge for all, as a right in itself and as a condition for sustainable development for all.

An additional innovation compared to previous editions is the focus not just on individual trends, but on what happens when they come together. Because it is these intersections that are most likely to characterise the future in which libraries need to work. Therefore, in addition to a set of seven high-level trends, the report shares a set of scenarios – visions of possible futures which result from the coming together of trends. Most of these are provided by our lead author team, but we are also privileged to be able to share a set of contributions by other experts.

INTRODUCTION

Together, these provide a set of building blocks ready for the library field to use.

Following the scenarios, there are a set of ideas around how you can do this, either individually or in groups. However, these are just a small selection of the different ways in which it is possible to use and build on what is shared here. Readers are encouraged to be inventive and imaginative in how they use the Report in their own settings.

The Report is not intended only to be for libraries. In focusing on wider knowledge and information trends, and by calling on the inputs of experts from outside of the library field, the goal is for it to be a basis also for conversations with external partners. We hope that it is something that can be shared as easily with local and national governments as with our communities, as a basis for talking about what sort of libraries will be needed in the future, and how we can ensure that this happens.

The Report therefore contains the following elements, all of which can be used together or on their own in support of the overall goal of building the reflex of thinking about the future:

A literature review, prepared by Professor Dezuanni and Dr Osman from the Queensland University of Technology (QUT), considering a wide range of materials looking at the future of knowledge and information.

This sets out seven high-level trends, and 29 sub-trends, as well as pointing out potential positives and negatives of this work.

A set of scenarios, exploring the potential futures that could result from the interplay between these trends. A core set of these are provided by our main author team at QUT, with a further set developed by a selection of experts from inside and outside of the library field.

A number of ideas for 'ways to play' – practical suggestions for how to use the report within institutions and associations, as well as in individual practice.

A set of references used in developing the literature and scenarios for further reading

Further materials will also be developed, including learning materials and other scenarios, and shared via the **Trend Report website**.

CONTENTS LITERATURE REVIEW AND TRENDS

This first section draws on an extensive literature review of materials exploring trends that relate to knowledge and information. Best efforts have been made to source these from all parts of the world, as well as from a variety of different types of entity.

In each case, there is an overall introduction which offers an overall narrative about the trend and potentially conflicting elements within this. This includes a high-level overview of opportunities and challenges. Next, each Trend includes a series of sub-trends which underpin and potentially influence the direction of the Trend as a whole. These are often contradictory, and can clash, creating uncertainties around the future.

Finally, at the end of each, there are some ideas for things to think about, as well as questions that you can ask yourself within your library, library system or library association.

THE TRENDS

KNOWLEDGE

TREND 1: KNOWLEDGE PRACTICES ARE CHANGING

The future holds both opportunities and challenges for improving equity in knowledge systems.

Around the world, countries and communities are recognising the need to prioritise diverse and marginalised voices in areas ranging from entertainment and storytelling to policy- and decision-making. Additionally, as much knowledge around the world is not held in written texts, new ways to incorporate traditional and non-Western knowledge and knowledge systems into mainstream and dominant cultures are being developed (see Trend 5). Concurrently technology is changing how information is created and shared (see Trend 2).

Providing platforms for diverse voices enriches our knowledge and understanding of society and the world around us, however as we discuss below (see also Trend 3), having open platforms for creating and sharing knowledge does not always privilege marginalised voices and can have, and has had, the unintended consequence of privileging existing knowledge and information power structures. We present this trend in the context of the COVID-19 infodemic, misinformation, disinformation and maliformation (collectively referred to as misinformation) that have changed the information and knowledge practices we use to determine what is true.

In this section, we also consider the impact of dominant digital platforms, regulation, censorship, and new ways to engage with information in increasingly personalised information environments.

Opportunities

- More equitable and inclusive knowledge systems.
- Increased access to more information enabled by technology.
- New forms of communication like short-form video and data storytelling.

Challenges

- The spread of misinformation.
- Information becoming siloed on digital media platforms.
- Over-regulation of information environments.

TREND 1: KNOWLEDGE PRACTICES ARE CHANGING

The demand for diverse voices

Whose Knowledge notes that "the knowledge of marginalised communities (the majority of the world) on the internet" needs to be centred, and that currently most publicly available information on the internet is written by "white men from Europe and North America". There is a growing demand for local content in local languages, from websites to stories and screen content and the inclusion of diverse voices in content and information is increasing. People are seeking out non-Western stories and looking to improve representation not only in knowledge and information content but among those who create it. Representation in media content is a cross-cutting issue that reflects existing sociocultural and geopolitical trends and inequalities from politics to data (see Trend 5) that has implications for the ways knowledge and information are created, shared and used.

Misinformation continues to impact society

A persistent challenge for the information landscape is misinformation and its impacts. Social media sites and digital media platforms are designed to capture our attention and time, and allow us to easily share content. Responding to misinformation on these platforms will require both technical and sociocultural approaches.

The OECD recognises that, "The fast and massive spread of mis- and disinformation poses a fundamental threat to the free and fact-based exchange of information underpinning democracy and trust in public institutions" (also see Trend 5).

The pandemic highlighted the public health risks associated with misinformation, and the enduring effects it has on people's health and wellbeing. Science communication has historically been challenged by communicating changing evidence and updated health advice, however health misinformation is, and will continue to be, particularly hard to address in the future as declining trust in governments and the media (and to some extent science) is coupled with the sharing of increasing amounts of misinformation among people using digital media platforms.

> Social media platforms have become go-to sources for health information, especially among adolescents and young adults. However, many people are not equipped to manoeuvre the maze of health misinformation. (Wang 2023)

Attacks on scientific consensus threaten public confidence in evidence-based information, advice and policy. We will need to develop critical literacies (Trend 4) to navigate and negate post-truth politics and the effects of decreasing trust in media and governments (Trend 3).

TREND 1: KNOWLEDGE PRACTICES ARE CHANGING

Misinformation and disinformation like deepfakes (see Trend 2) coupled with a declining news ecosystem means that democratic governments will need to work harder than ever to maintain the trust necessary for a democracy to function. State actors with antidemocratic leanings are making use of technology and susceptible systems to further their own interests.

The threat of deepfakes and misinformation, prompts the Buffet Institute for Global Affairs to predict that: "Western democracies in particular will become ever more concerned about the potential erosion of trust needed for democracy to function. In response, expect an increase in the number of organisations, thinktanks and research organisations like Northwestern Security & AI Lab devoting time and resources to studying the evolving capabilities and threats of cyber deception, developing technical countermeasures to detect them and providing risk mitigation guidance and solutions."

Digital silos: Platformisation impacts equitable access to information

Platformisation: "the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life. And in the tradition of cultural studies, we conceive of this process as the reorganisation of cultural practices and imaginations around platforms." Poell et al. 2019

Digital media platforms, including social media, have significantly changed the information landscape. These platforms are now a one-stop shop for entertainment, news, community updates, connecting with friends and family, creating content, and buying and selling. People seeking information rely on digital channels with the Edelman Trust Barometer reporting that online search and social media are the top two ways people get most of their information about new technologies for example. The Pew Research Center also finds, "Adults under 30 express a clear preference for using social media over news outlets to get opinions on an issue and up-to-date information as an event is happening." As news media industries continue to change and respond to technological developments, how news and information are produced and shared across different platforms will change. In addition to news being siloed on single platforms, other essential information may often be communicated to communities via a social media platforms raising questions of access and equity.

Balancing information regulation for human development & wellbeing

As governments around the world grapple with regulating established digital and social media platforms, overreach is a potential threat as governments seek to regulate existing and emerging technologies. Attempts at regulating media organisations and digital platforms can also be used by governments to enact censorship and restrict access to information. This is a long-standing problem in many countries that have "used libel and defamation laws, and internet shut downs to limit the freedom of expression of citizens and the media," as noted by Ashwanee Budoo-Scholtz. Under claims of asserting digital sovereignty, The World Economic Forum warns, "Freedoms relating to the internet, press and access to wider sources of information that are already in decline risk descending into broader repression of information flows across a wider set of countries."

Digital Sovereignty: "Far from a monolithic ideal, what we found was a broad and ill- defined notion that different groups interpret and apply diversely across the world. These include governments that wish to control how Internet operations and resources are run; local businesses that decry the dominance of foreign tech platforms; Indigenous communities that want to safeguard local knowledge and resources; and individuals who want to assert their autonomy over their interactions with devices, platforms, and how they manage their data." Internet Society

Managing information flows and technological development alongside national sovereignty and human development will be a challenge for both governments and civil society. Informed regulation can respond to the challenges of misinformation. Research from Chatham House states that:

> After decades of reluctance, governments around the world are moving to regulate, and more actively direct, digital platforms in an effort to tackle perceived harms and to strengthen state oversight and control. Digital sovereignty is emerging as a critical goal of government policy, but the agenda is complicated by national security considerations, the influence of tech companies and domestic politics. […] In the absence of new approaches to global governance, a jurisdictional, fragmented 'Venn diagram' of national internets could emerge, undermining the promise and benefits of openness.

Without a collaborative approach to regulation as outlined in UNESCO for the Governance of Digital Platforms, there is a risk of restricting information flows and limiting the transparency of information systems needed for healthy democracies and development.

TREND 1: KNOWLEDGE PRACTICES ARE CHANGING

Personalised and tailored information delivery

The data that is collected about us is often used to tailor both our online and offline experiences. This has a long history in targeted online advertising and search, and can be for a social good purpose, like advising people that they may be eligible for government assistance if they live in a disaster-affected area or alerting them to the disaster in the first place. It can be used to reduce barriers to accessing and using government and social services by personalising a "customer journey."

But as people are expecting more tailored services and experiences, organisations risk crossing personal boundaries and starting to appear creepy. Moreover, targeting information can potentially limit our serendipitous engagement with other information and content. The American Library Association note that, "as data is used to control or shape search results and information access, users may need to be reminded of the full diversity of information available to them" (See Trend 4).

Personalised and tailored information delivery

Short-form videos have changed the social media landscape. TikTok is now one of the leading social media platforms and short-form video is now a regular part of people's social media feeds, as well as being a feature of messaging apps like Snapchat, WhatsApp and WeChat. The Washington Post suggests that the trend towards engaging with information through short-form videos like those on TikTok will change the structure of dominant platforms like Facebook and YouTube: "America's biggest technology innovators are reinventing themselves in TikTok's image, not only in developing short-video copycats — Meta's Reels, YouTube's Shorts — but in swapping out networks of friends and families for feeds of strangers chasing viral glory. TikTok's model could soon shape the entire internet."

Short-form video has a range of genres, from the creative to the informative and Pew Research found, "A small but growing share of U.S. adults say they regularly get news on TikTok. This is in contrast with many other social media sites, where news consumption has either declined or stayed about the same in recent years." TikTok and other platforms that host short-form videos are driving different forms of engagement with information. As Dentsu Creative points out in its trend forecast, "Like parables or cartoons before them, memes and reels have emerged as a way of distilling complex ideas into bite-sized, shareable, and endlessly repeatable formats. As TikTok demonstrates there is no topic, from finance to Excel hacks to social justice, too complex to be condensed into pithy video content."

TREND 1: KNOWLEDGE PRACTICES ARE CHANGING

Similarly, there is a trend toward engaging with information in small increments via microlearning apps for things like learning languages, while deeper engagement with news, data and information is prompted by a trend toward to storytelling. The Reuters Institute survey found that, "Strategies that publishers consider very important to counter [news fatigue and avoidance] include better explanation of complex stories (67%), more solutions-oriented or constructive approaches to storytelling (44%), and more inspirational human stories (43%)."

Things to think about

The push for increased representation in systems and institutions has gained prominence through movements like Black Lives Matter, Me Too, and marriage equality. The OECD notes an "increasing recognition of the need to strengthen democratic representation of historically underrepresented groups (e.g. youth, women and minorities) in elected bodies, and to ensure that the civil service itself is diverse, representative and responsive.

Questions

- How diverse is your library service?
- How do you personalise your library services? What are the implications of this?
- How can you build skills in your community to counter misinformation?
- How do you use short form video to engage people with library information?

TECHNOLOGY

TREND 2: AI AND OTHER TECHNOLOGIES ARE TRANSFORMING SOCIETY

Generative AI and new technologies are changing how we create, share and use information

Given the proliferation of applications using generative AI, along with the media coverage of generative applications like ChatGPT, it should be no surprise that one of the most dominant trends over the coming years will be the influence of artificial intelligence on our lives. From education and healthcare to commerce and creativity, AI's influence will extend across all life domains.

Developments in generative AI are moving quickly and as a society we are still catching up with what this means for us all ethically, politically, socially, culturally and economically: we need to "Strengthen international governance of emerging technologies, including Artificial Intelligence, for the benefit of humanity" (UN Global Digital Compact).

The next ten years includes technological developments that are not AI (even if they do use it), as information technology trends continue to frame how information and knowledge are, and will be, constructed, shaped, shared, engaged with and used.

In this section we consider the role of technology in spreading misinformation via deepfakes, the use of reality technologies to create immersive learning environments, the increase of network speeds, the rise of digital twins and the potential of technology for large-scale preservation of information in response to threats of information loss.

Opportunities

- Automation of everyday tasks
- New ways to engage with information
- Lower cost internet connectivity
- New forms of creativity

Challenges

- Information integrity
- Balancing the rights of creators and enabling new forms of creativity
- Detecting deepfake content
- Information loss from cyberattacks

TREND 2: AI AND OTHER TECHNOLOGIES ARE TRANSFORMING SOCIETY

Generative AI has great potential, but also potential harms

Generative AI takes its name from its capacity to generate novel content, as varied as text, image, music and computing code, in response to a user prompt. For example, conventional AI can be used to analyse features of a legal contract, such as to identify whether the contract deals with intellectual property or privacy. By contrast, generative AI can be used to generate (i.e. draft) a new legal contract to cover those issues. Bell et al (2, 2023)

In a Rapid Response Report on Generative AI (or GenAI) produced for the Australian Government, Bell et al (1, 2023) say that "it is almost impossible to accurately forecast opportunities over the next decade. Known risks are clearer, but there are categories of emerging risks that are difficult to forecast." GenAI will have a significant impact on the information landscape from content creation, to education, to redefining jobs, task automation and language translation.

Bell et al also note, "Early adopters of existing AI, including information-based industries, research and healthcare, may benefit, through, for example, textual analysis and image processing, before a wider uptake of the technology occurs across the economy" (9, 2023).

They also found significant investment in generative AI around the word including "the UK's AI Strategy and investment of £900 million in an AI supercomputer … Germany's €3 billion investment by 2025, the US Government funding analysis in AI, China's plan to be a global leader in AI by 2030, and investment globally in AI start-ups" (14, 2023). The IDC Asia/Pacific proposes that, "by 2028, 80% of Chief Information Officers will leverage organisational changes to harness AI, automation, and analytics."

Along with being used at scale in businesses and institutions, GenAI will be more present in our homes, and in our everyday lives as we use search, automate and create. Generative AI will be present in virtual assistants, in the devices we use (see IoT Trend 3), assisting with things like personalised learning, language translation and creating content like graphics and music. While AI already exists in much of the technology we engage with in our everyday lives, the potential spread of unregulated generative AI raises questions about how it is being used in education settings, along with the integrity of the data being used by the technology. If we rely more and more on models that only include certain types of knowledge in their training data, what does this mean for non-dominant languages, accessibility to excluded information and marginalised groups more widely?

TREND 2: AI AND OTHER TECHNOLOGIES ARE TRANSFORMING SOCIETY

The use of generative AI for creating and sharing information also raises questions about copyright, both for the data AI uses and the content it generates: "Finding a new GenAI-induced balance in copyright law should not only take into account the welfare of media industry producers and consumers, but of the entire economy… Both over-protection and under-protection reduce the societal benefits from copyright" (Martens, 2024). Regulation seeks to balance the rights of creators with the potential of new forms of creativity and knowledge generation.

Currently in 2024, governments and regulators around the world are moving quickly to address the potential risks of large-scale use of unregulated AI (see Trend 1). The UN General Assembly adopted an AI resolution in March 2024 on the promotion of "safe, secure and trustworthy" artificial intelligence (AI) systems that will also benefit sustainable development for all."

The circulation of deepfakes increases the existing challenges of misinformation

Deepfakes—media content created by AI technologies that are generally meant to be deceptive—are a particularly significant and growing tool for misinformation and digital impersonation. Deepfakes are generated by machine-learning algorithms combined with facial-mapping software that can insert that data into digital content without permission. When execution is excellent, the result can be an extremely believable—but totally fabricated—a text, video or audio clip of a person doing or saying something that they did not. Buffet Brief, Northwestern University, July 2023

The application of AI to generating deepfakes has profound implications for misinformation (see Trend 1). As Bell et al (2023) pointed out in their rapid response report, AI has "the potential for misuse by generating high-quality, cheap and personalised content, including for harmful purposes. Tools built on these models are already in use to generate deep fakes (high-quality artificial images, video and speech for disinformation, including by state actors) indistinguishable, at least without special training or access to technical tools, from human generated content. Existing challenges related to the spread of misinformation may be amplified as AI-generated content circulates alongside other information."

TREND 2: AI AND OTHER TECHNOLOGIES ARE TRANSFORMING SOCIETY

Detecting deepfake content remains a challenge, both at a technical and social level. While deepfakes can be spread by bad actors in a network, many also spread via people's ordinary, everyday social media sharing practices. Media literacy (see Trend 4) is important for countering this kind of content as deepfakes may align closely with what is 'believable,' and people's beliefs are difficult to counter as noted in The Conversation: "People don't like the feeling of inconsistency and seek to resolve it. People will also ignore the structure and quality of an argument, and focus on the believability of its conclusion."

Michael Wade, Professor of Innovation and Strategy at IMD and Director of IMD's Global Center for Digital Business Transformation says that deepfakes are increasing and will have far-reaching consequences, "The ubiquity of deepfake technology is poised to reach new heights in 2024, permeating various facets of society and challenging the very notion of truth. As the saying goes, "seeing is no longer believing", and this phenomenon will have far-reaching ramifications in politics, corporate governance, and information security."

Mixed reality technologies offer new ways to engage with information

The metaverse has been touted in the media as a defining trend/feature of the next decade. However we found that while the individual technologies that enable access to the metaverse via augmented- (AR), mixed- (MR), or virtual-reality (VR) are included in trend forecasts for the next few years, there has been a mixed response as to whether a truly immersive environment (the metaverse as a total concept) will become influential in our lives.

In surveying digital society experts about the metaverse, Pew Research Centre found that, "two broad themes emerged …First, a notable share of these experts argued that the embrace of extended reality in people's daily lives by 2040 will be centred around augmented-reality and mixed-reality tools, not in the more-fully-immersive virtual reality worlds many people define today as being "the metaverse." "

The metaverse concept nonetheless presents a number of opportunities for improving inclusion in digital life (Trend 5), including for people to connect across borders, for immersive education, and for people living with a disability to access services and experiences. For example, "the metaverse may be used to expand learning options and provide students greater access than might otherwise be possible in a physical environment. […] Within these 3D simulations, it is possible to participate in historical events, visualise geometrical elements, explore planets and much more."

However, as the metaverse and its 'worlds' are built, it risks replicating the existing problems of digital society. This may be because the problems that exist in mainstream technologies regarding access, affordability and security also exist in the metaverse. Challenges include infrastructure and devices, fraud and scams, and privacy and data protection. Like privacy concerns about existing digital platforms (see Trend 3), data generated in the metaverse "could also track users, identify them, and analyse data – including hand, eye, and body tracking. Developing strong privacy and security measures to protect user data in the Metaverse is essential."

Data usage and network speeds increase

The technology that underpins access to information via the internet and digital technologies is also advancing rapidly. Wireless network connectivity like mobile broadband, Wi-fi, and satellite technologies that enable people to access the internet, apps and online services are becoming increasingly more important than fixed-line broadband for society and the economy (Oughton et al. 2023). While some parts of the world currently rely on 3G, the next decade will see wireless technology move to 6G, F6G and Wi-Fi 8.

This has implications for the digital divide (Trend 5) as those countries and people with less connectivity have less opportunity to participate in digital society and the digital economy. The International Telecommunications Union (ITU) finds that "89 per cent of the population in high-income countries is [currently] covered by 5G. In low-income countries, only one per cent of the population is covered. In fact, 3G – not even 4G – remains by far the most prevalent mobile broadband technology in the poorest countries, where more than 20 percent of the population remains off the connectivity grid."

TREND 2: AI AND OTHER TECHNOLOGIES ARE TRANSFORMING SOCIETY

Mobile data traffic is expected to grow, and mobile phone subscriptions now exceed the world's population. The numbers are lower for fixed-line connections as these are normally shared among household members and people working in businesses, although these connections have higher traffic and data usage. However, the share of traffic between wireless and fixed-line connections will change over the next decade as wireless technologies improve their capabilities. Technology company Huawei predictthat mobile data usage per person will increase 40-fold by 2030. The Sandvine Global Internet Phenomena Report finds that network growth is driven largely by an increase in video-streaming and that "Netflix is King in [the] Americas and Asia-Pacific, but YouTube retains the crown in Europe, the Middle East and Africa. While video dominates traffic in all regions, don't discount the impact gaming, marketplace, social networking, and cloud storage services are having on total traffic."

Digital twins are scaling up

A **digital twin** is a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning and reasoning to help decision-making. IBM.

The idea of a "digital twin" is not particularly new. One of the first digital twins is famously the Apollo 13 twin, used to successfully bring a group of NASA astronauts home to Earth in 1970. However, advances in technology mean that digital twins now exist for everything from cars, to cities, to an entire nation.

UK innovation agency Nesta highlights the scale of digital twin technology over the next decade as, "Now we are starting to see the development of digital twins at the previously unprecedented scale of nations. Just like Apollo 13, it's often being driven by the threat of disaster." The Pacific nation of Tuvalu is expected to be uninhabitable due to the effects of the climate crisis within our lifetime. In response to its impending loss of land, language and culture, the Tuvalu government is building a digital twin of the island nation. Tuvalu.tv states that "This digital transformation will allow Tuvalu to retain its identity and continue to function as a state, even after its physical land is gone.

It will also facilitate the governance of a Tuvaluan diaspora by creating a virtual space where Tuvaluans can connect with each other, explore ancestry and culture, and access new opportunities for business and commerce in various industries."

Nesta also notes the risks and potential harms that come with these advancements: "Given digital twins are built using data, citizens may be concerned about their privacy. Governments or corporations might misuse them for unwarranted surveillance. And could backup nations create a potential moral hazard as we might become more willing to sacrifice real nations?" If Tuvalu is a pilot in solutions for the impending geographical, political and environmental upheaval wrought by climate change then consideration needs to be given to these same effects brought on by the turn to digital (see Trend 3).

Security is a pressing issue for organisations

Advancements in technology also raise the risk of security threats to governments, businesses and institutions around the world. Along with the spread of misinformation, bad actors are increasingly targeting large institutions, like the British Library in cyberattacks. In a recent survey of over 2,300 organisations consulting firm PwC found, "that although rates of fraud and economic crime remain reasonably consistent globally, some fraud types are becoming increasingly disruptive. Attacks by more sophisticated external actors, particularly organised crime, are more prevalent and increasingly targeting customers directly."

Collaboration will be required between industry and government to address escalating cybersecurity threats. Blockchain could be a potential solution to rising security threats, and advocates for consumer safety say that technical solutions need to be included from the outset: "Ultimately, creating better tech for people is a deliberate design choice that demands integrating these essential elements into the very fabric of the development and deployment processes, rather than treating them as mere afterthoughts."

As the British Library cyberattackas demonstrated, getting large scale information systems back online and accessible to the public takes time and extensive resources. It will therefore be vital in coming years to prioritise security to minimise the risks to the technical infrastructure that contains vital knowledge and personal information.

TECHNOLOGY

TREND 2: AI AND OTHER TECHNOLOGIES ARE TRANSFORMING SOCIETY

Things to think about

Gaps in technological connectivity exist in countries where people mostly live in urban centres, and those living in rural and remote areas rely on older 3G and 4G networks or newer satellite technologies like low earth orbiting satellites (LEOs). This has implications for accessing education, healthcare and economic opportunities when services are unavailable.

Questions

- How will AI change things like learning, language translation and creating content and information?
- How will libraries prioritise security? What implications will additional security measures have?

TREND 3: TRUST IS BEING RENEGOTIATED

Re-establishing trust in government and media is central for our societies to flourish

Trust in governments and public institutions around the world is declining. The public now trust scientists, peers and company technical experts to provide information about important information like new scientific developments, medical information and innovation over government and media (see Edelman Trust Barometer below). With more people questioning mainstream media and government information, transparency and openness are key to re-establishing trust.

In this section, we consider how trust and accountability interact to impact information systems, from the loss of local news services, to tensions in open information movements and the challenges organisations, governments and individuals face in negotiating privacy.

Opportunities

- Open and transparent information systems
- Open models that inform AI governance
- Collaboration among business, NGOs and government to create equitable information systems
- Improved privacy rights and protections

Challenges

- Declining trust in government
- Declining trust in media
- Depletion of local news

TREND 3: TRUST IS BEING RENEGOTIATED

Trust in governments and institutions is declining

With the number of elections to be held this year (see Trend 4), the trend of declining trust in governments and institutions like the media needs to be viewed in the context that, "Over four billion people are expected to vote in 2024. There is now a howling gap between the minority of the world population living under democratic governance, and the vast majority living under one form or another of autocratic rule" (Azhar 2023).

Consulting firm Deloitte also notes that, "Public trust in government is at near historic lows." They suggest that people are seeking collaborative solutions to complex problems and have less trust in, and expectations of, government. The OECD suggests that, "to meet citizens' evolving expectations, governments must do better, both in giving all people a voice and in responding to those voices. They must also improve integrity and fight undue influence, credibly address long-term challenges such as climate change, evaluate and communicate the effects of reforms on different socioeconomic groups, and develop better governance models for information ecosystems."

Globally, businesses are still far more trusted than governments. The Edelman Trust Barometer reports that businesses are viewed as more competent and ethical than governments. Trust is an issue among many sectors, as despite some small increases in trust over the last year, the media and social media are still highly distrusted around the world. The World Economic Forum notes the differences in media trust levels among different communities: "Research from Reuters shows that marginalised groups are more likely not to trust mainstream media, and these groups are also at risk from the highly ranked areas of concern identified in the report like economic downturn and unemployment."

The loss of local news production is affecting those communities already disadvantaged in other ways

As public services are withdrawing from physical locations in favour of digital points of access, so too are local news services. Around the world, communities are finding themselves in "news deserts". People in towns and regions that do not have local journalism and a regular source of local news content are often relying on social media for local information and updates, or larger outlets for news. News leaders around the world predict, "We will see even more newspapers stopping daily print production this year as print costs rise and distribution networks weaken or in some cases reach breaking point." The Guardian reports that these increasing news deserts are a result of large corporations dominating news ownership, sidelining those publishers with a stake in their local community.

It also reports, "the social costs of losing coverage genuinely rooted in communities is profound, and "news deserts" – without a reliable source of local news – tend to be places deprived in other ways."

This exodus of publishers from smaller local news markets is not due to a lack of demand- people still want local news, about them, and for them. The Public Interest News Foundation in the UK found that people want, "Journalism that gives voice to ordinary people's experiences; that respects the diversity of their areas; that combines hard-hitting watchdog journalism with stories about solutions; and that responds directly to local people's priorities. Most of all, they want local news that is truly local, and not 'cookie-cutter' media that pastes local colour onto generic stories that are the same from Belfast to Basildon." The erosion of local news services in combination with a declining trust in media has implications for the trust that people have in other institutions normally held to account by (local) media.

The open movements face challenges

The early internet promised open and free access to information and the ability to share knowledge without the constraints of traditional institutions. This promise was embodied by open source software and the wider open movement. However, over time open source became a part of a larger digital economy dominated by commercial platforms (see Trend 1) that collect and trade user data. The Open Future Foundation recognises the urgent need for more work to be done to reconcile the ideals of an open access and the realities of today's digital society.

An increasing amount of funded research is expected to have its findings publicly available. The open access movement is closely aligned with libraries' mission of making information like this freely available to the public. This has been complicated in the past due to the paywalling of information by expensive academic journals, or by news and media organisations struggling to redefine their business model. Additionally, while open access is an option for academic authors, the fees imposed by publishers to enable open licensing of content are often prohibitive to scholars, particularly those from the Global South.

TREND 3: TRUST IS BEING RENEGOTIATED

Open culture advocates campaign for open information infrastructures to collect, preserve and make available the digital information and ephemera that may otherwise be lost when commercial platforms fail. This is challenged by moves to exert greater control over how content is accessed and used considering commercial priorities and possibilities to monetise access. Equity is a concern as with academic publishing above, as often who can provide free access to content is dependent on their financial resources.

Privacy is being traded for accessibility

As technology has advanced, many of us rely on integrated technologies to "talk" to each other (see the Internet of Things below), and we are demanding more accountability from the platforms that collect, hold and use our data. We are also expecting to have greater control over the data we choose to share and how it is used, especially in light of numerous high profile data breaches over the past decade.

Internet of things: IoT uses a variety of technologies to connect the digital and physical worlds. Physical objects are embedded with sensors—which can monitor things like temperature or motion, or really any change in environment—and actuators—which receive signals from sensors and then do something in response to those changes. The sensors and actuators communicate via wired (for example, Ethernet) or wireless (for example, WiFi, cellular) networks with computing systems that can monitor or manage the health and actions of connected objects and machines. McKinsey & Company

The amount of data that can be and is collected about us is increasing, and there are tensions around the quantity of data needed to enable access to digital services and an individual's right to privacy or to withhold their data completely. Accessibility here refers primarily to interoperability, that is, our ability to access the information we want and need (see Trend 1) across a diverse range of technologies that access shared personal data. Sometimes this access is restricted because of commercial value, other times accessibility is limited due to infrastructure and technical capabilities. And as people are requested to share more data to access services, across more systems, privacy is afforded to those with the education and skills (see Trend 4) to negotiate the privacy settings of the devices and services they use.

TREND 3: TRUST IS BEING RENEGOTIATED

Just as participating in the open ecosystem requires resources, so too can privacy be considered a privilege. Not only does keeping personal and other information private require competencies, often those who are socioeconomically disadvantaged rely on systems and services, both digital and in-person, that require sharing personal data. They cannot "opt out" of these systems. While there is a small trend of internet rejectionism, the ubiquity and necessity of digital connections for so many people around the world means, "rejectionists depend on people who are not rejectionist [and that] is simply a fact."

Allowing access to our digital data also enables surveillance. Many of the everyday technologies we use rely on geolocation, the ability to locate a physical point in space via digital means, often using internet-enabled devices that are part of the IoT. This raises particular privacy concerns (often referred to as geoprivacy) and Megarry et al. note the complexities of this for everyday smartphone users, "On any major mobile operating system, location-sharing requires user consent; however, the scale and complexity of data being used and shared among differing parties means that is more challenging than ever for end-users to fully understand the privacy risks, benefits, and implications involved in sharing their location with and through their device."

Pew Research survey of experts finds that they fear in the future, "new threats to rights will arise as privacy becomes harder, if not impossible, to maintain. […] surveillance advances, sophisticated bots embedded in civic spaces, the spread of deepfakes and disinformation, advanced facial recognition systems, and widening social and digital divides [are] looming threats." We urgently need to develop skills to navigate accessibility, rights and privacy.

Things to think about

Paywalled journalism is mainly accessible to those with the means to spend money on news. Points of open and free access to this kind of content (like libraries) can encourage critical engagement with news and information, and can provide a valuable source of news and media literacy outside of educational settings like school and university.

Questions

- What role can local libraries play in news deserts?
- How can libraries help build trust in public institutions?

SKILLS

TREND 4: SKILLS AND ABILITIES ARE BECOMING MORE COMPLEX

People will need practical, critical and digital skills to thrive

As societies become ever more complex due to the impact of digital technologies, people need to develop practical skills to use devices, software and systems. They also need critical and creative skills to successfully navigate and benefit from media and information environments.

There is general agreement from experts that digital skills will be necessary in an increasing number of future roles as AI is predicted to have an impact on jobs. Bell et al. (2023) suggest, "There could be an increase in demand for digital skills, with the entry of generative AI expected to require 161,000 AI specialisations globally by 2030."

Similarly the OECD 2023 Skills Outlook states, "Two areas in which investments in skills and skills policies can help societies anticipate rather than react to future adverse events are promoting environmental sustainability and ensuring human-centred digital technologies that effectively support communication and information exchange… Projections suggest that between 2019 and 2030, the demand for skills related to interacting with computers, thinking creatively, analysing data and information, and communicating with persons outside an organisation will grow the most."

These skills are necessary beyond the workplace, and the need to develop practical and critical new skills is essential for people to thrive in the future.

In this section, we consider the urgent need to address skills gaps along with the benefits brought about by improved media and information literacy for safety and wellbeing.

Opportunities

- Digital skill and competency development to thrive in the digital economy
- Increased media literacy leading to informed, creative and resilient communities
- Improved online safety

Challenges

- Global talent shortage
- Scams place additional burden on those without skills

TREND 4: SKILLS AND ABILITIES ARE BECOMING MORE COMPLEX

There is a global talent shortage and a growing demand for digital skills and competencies

There is a growing demand for digital skills across a range of professions and jobs- not just those classed as "technology" roles. The World Economic Forum (WEF)'s Future of Jobs 2023 report states that, "In the next five years, 83 million jobs are projected to be lost and 69 million are projected to be created, constituting a structural labour-market churn of 152 million jobs, or 23% of the 673 million employees in the data set being studied. This constitutes a reduction in employment of 14 million jobs, or 2%."

The WEF notes in relation to the current talent shortage, the need for people to increase their skills and literacies as, "There is a particular shortfall in digital skills and other skills of the new economy as technology disrupts labour markets."

This means developing the skills of people who are at risk of being left behind in the digital economy along with developing the competencies of the existing workforce and preparing young people for future jobs. The Economist Intelligence Unit notes that "Digital literacy among employees is critical, and this will not only happen through the education system. Companies will also have a role to play in ensuring that they provide the right training to their employees based on what is and will be required by the business over time."

The American Library Association forecasts the effects of AI (see Trend 1) for libraries: "If AI becomes a serious threat to jobs, libraries' roles in workforce development may become even more important, but also more complicated. A compounded challenge may arise where workforce development will need to encompass not only the preparation for entry level individuals (into a market that is increasingly limited and competitive), but also solutions for a new vacuum in middle level management caused by the elimination of once plentiful entry level workers who matriculated into middle management. The new workforce development demands will likely require higher-order critical, creative, and innovative thinking as well as emotional engagement, placing a greater value on the quality of thinking, listening, relating, collaborating, and learning."

The combination of critical and digital skills is essential for information and knowledge specialists, especially those who are supporting and guiding others to access information and resources.

SKILLS

TREND 4: SKILLS AND ABILITIES ARE BECOMING MORE COMPLEX

Media and information literacy benefits individuals and communities

The ability to critically engage with different types of content across a variety of media is a vital literacy. Without local news, coupled with declining trust in government (see Trend 3) and the rise of deepfakes (Trend 2), building the skills needed to navigate the increasing complex global media and information landscape is essential to develop informed, creative, and resilient communities.

Media and Information Literacy consists of the knowledge, the attitudes, and the sum of the skills needed to know when and what information is needed; where and how to obtain that information; how to evaluate it critically and organise it once it is found; and how to use it in an ethical way. The concept extends beyond communication and information technologies to encompass learning, critical thinking, and interpretative skills across and beyond professional and educational boundaries. Media and Information Literacy includes all types of information resources: oral, print, and digital. IFLA

Governments and institutions are recognising the need for multi-stakeholder approaches to misinformation (see Trend 1) that encompass both media and information literacy in combination with building digital skills and capabilities. The OECD states that, "A resilient information ecosystem includes a role for civil society and traditional news media in pre- and de-bunking misinformation; a better, more citizen-centred government communications function; and long-term efforts to improve media and information literacy."

Academics concerned with the rising trend of deepfakes note that there is, "no simple solution to unmasking deepfakes. Rather than passive consumers of media, we must actively challenge our own beliefs. The only way to combat harmful forms of artificial intelligence is to cultivate human intelligence." Pew Research surveyed digital society experts to predict potential trends in digital life in light of the rise of AI and found that, "They wish for improved digital literacy that will revive and elevate trusted news and information sources in ways that attract attention and gain the public's interest. And they hope that new digital tools and human and technological systems will be designed to assure that factual information will be appropriately verified, highly findable, well-updated and archived."

This points to the need for not only a media and information literate citizenry, but also a skilled professional workforce that enables easy and open access to accurate information and content.

TREND 4: SKILLS AND ABILITIES ARE BECOMING MORE COMPLEX

Information and digital skills improve safety

As more data are being shared in more ways, safety is a pressing issue for society. Scams will be increasingly sophisticated, targeted and easy deploy at scale. Speakers at the Global Anti Scam Summit noted the surge in scams, including types of fraud like banking scams that particularly affect individuals. Experts also noted the global nature of scams and that disadvantaged groups are often a target.

Many crimes also go unreported, especially when people are embarrassed that they fell victim to a scam. As AI develops, the need for organisations and individuals to develop digital capabilities and literacies to identify security threats and fraud is critical.

Additionally, online harms and threats are being reported, in some cases by a majority of internet users in certain age groups and countries. Along with advocating for better technical and regulatory approaches to reducing harm, developing digital, media and information literacies can help those most at risk of harm improve their safety and ability to participate online as is their right.

Things to think about

The Australian Media Literacy Alliance notes that, "museums, archives, libraries, public broadcasters, schools and universities already play a significant role in supporting media literacy and have done so for decades." UNESCO states that, "Information literacy and lifelong learning have been described as the beacons of the information society, illuminating the courses to development, prosperity and freedom."

Questions

- What is the role of libraries in identifying and addressing emerging skills gaps in communities?
- What professional development do libraries need to offer staff?
- Does media and information literacy offer a solution to online harms and threats?

INCLUSION

TREND 5: DIGITAL TECHNOLOGIES ARE UNEVENLY DISTRIBUTED

Digital inclusion will increase equity

Around the world more people are accessing and using technology in their everyday lives, however there are still significant numbers of people across the globe who do not have access to the connections and devices required to fully participate in society. Aside from the access requirements prompted by the global move to a digital economy and digital-first services, quality devices and connections provide an opportunity for people to connect and communicate, create and play, and learn and share.

People who are digitally excluded typically experience challenges across the three domains of digital inclusion: access to appropriate connections and devices, the affordability of connections and devices, and the digital ability to be able use technology in the ways they want and need. At a global level, less developed countries have less and lower quality network coverage (see Trend 2), while at an individual level, people who are disadvantaged in other life spheres (for example, living on a low-income, having lower levels of education) are also more likely to be digitally excluded.

In response to deep inequity, the UN Global Digital Compact is being created, with the latest draft setting out five objectives to fulfil the goal of "an inclusive, open, sustainable, safe and secure digital future for all" recognising the deep digital divides that exist among and within countries:

> "(1) Close all digital divides and accelerate progress across the Sustainable Development Goals;
> (2) Expand inclusion in and benefits from the digital economy for all;
> (3) Foster an inclusive, open, safe and secure digital space that respects, protects and promote human rights;
> (4) Advance responsible and equitable international data governance;
> (5) Strengthen international governance of emerging technologies, including Artificial Intelligence, for the benefit of humanity."

the ways they want and need, are at risk of being further left behind by the digital economy. We also examine the trend of digital-first and digital-only service provision, including the use of digital IDs, and the need to establish inclusive information frameworks that inform diverse and appropriate service design.

Opportunities

- Cheaper, more affordable internet access
- Easier access to services through digital identities
- Designing and implementing inclusive data and information practices to inform appropriate service design

Challenges

- Deepening social inequality
- Poor physical network infrastructure
- Lack of social infrastructure to address lack of skills
- Lack of data

INCLUSION

TREND 5: DIGITAL TECHNOLOGIES ARE UNEVENLY DISTRIBUTED

The digital divide is deepening

Digital inclusion is the capability of individuals or groups to enjoy the benefits of being online and use technology confidently to improve their day-to-day lives. Be Connected

Despite advances in connectivity, approximately one third of the world's population remains offline and is at risk of being left behind by the digital economy. These 2.6 billion people are unevenly distributed among less developed and developed economies with the ITU finding that "Internet use remains tightly linked to the level of a country's development. In 2020, nine out of ten people in high-income countries used the Internet. In 2023, the share edged up to 93 per cent, getting closer to universality."

The COVID-19 pandemic boosted connections as people with the means to opted for faster broadband and more data, especially those people who switched to remote working arrangements (Trend 7). The uptake of technologies and devices during the pandemic improved the digital inclusion of many people who previously experienced some level of exclusion (for example, seniors), but has left certain groups even more digitally excluded. The ITU finds, "that children and young people from the poorest households, rural and lower income states are falling even further behind their peers in terms of digital inclusion and are left with fewer opportunities to catch up, facing disproportionate exposure to poverty and unemployment."

Regional, rural and remote communities are more likely to be digitally excluded and the ITU notes that, "Worldwide, 81 percent of urban dwellers use the Internet in 2023, compared with only 50 per cent of the population in rural areas. The urban-rural gap, measured as the ratio of the two percentages, has barely improved in recent years, from 1.7 in 2020 to 1.6 in 2023." The European Commission reports that, "limited internet access and a lack of digital devices can impede remote learning and preparation for future education and careers for pupils." However the Commission also notes that in the future, "Digital technologies can also support teachers, especially in [rural] schools experiencing teacher shortages. Digital technology has the potential to bridge distances and establish school networks that combat isolation due to remoteness by providing technology-mediated learning opportunities for pupils and teachers."

INCLUSION

TREND 5: DIGITAL TECHNOLOGIES ARE UNEVENLY DISTRIBUTED

While overall, more of the world is becoming connected, those without the ability to access and afford technology are getting left further behind their peers in terms of other outcomes across life spheres. People who are digitally excluded often experience other forms of intersecting disadvantage such as gender, being unemployed, having lower levels of education, or living in public housing. This means addressing digital inclusion issues in the future requires more than just providing access to devices and connections (although this no doubt helps) (see Trend 4).

Affordability is a major barrier to connections for low-income households who pay a disproportionate amount of their household income to pay for connections (Dezuanni et al. 2023), and many digitally excluded people rely on public places of connection and free wifi to access the internet. A study in Belgium revealed that the biggest users of public wifi were people on low-incomes, and that those who most used wifi in public libraries were under 24 years of age. Many people who are digitally excluded also rely on mobile devices and data, meaning they are paying more for data than fixed-line connections, and are limited in what they can do on a mobile device.

It is also worth noting here that the rapid development of AI technologies (see Trend 2) risks people and nations who are disadvantaged and digitally excluded being left further behind as, "Generative AI will also raise regulation and deployment considerations to ensure existing and new inequalities are not exacerbated or initiated. AI tools require considerable internet bandwidth, power and suitable devices, which are not available or affordable to everyone" (Bell et al. 2023). Therefore, countries that can afford to invest in AI infrastructure are better placed to take advantage of its benefits than poorer countries, just as those who have access to AI tools can make more use of the possibilities that AI brings than others.

Essential services are migrating to digital-first and digital-only service provision that requires a digital identity

Digital-first is the default model of service provision for many companies, social services, and governments around the world as they seek to streamline service delivery. This move has implications for the populations around the world who are in most need of services but may not have access to the technologies (and the skills to use these technologies) to access them.

The OECD's 2023 Digital Government Index found, "Most countries are strongly committed to reducing the digital divide. Over 90% have implemented an action plan aimed at tackling digital divides, 80% of which have also put in place enablers including a legal and regulatory framework, funding mechanisms, and public communications to support the implementation of the action plan."

TREND 5: DIGITAL TECHNOLOGIES ARE UNEVENLY DISTRIBUTED

Additionally, in an effort to streamline digital service delivery, governments around the world are implementing single digital identities for citizens that will enable them to access a variety of services. In its top government technology trends Gartner predicts, "over a third of national governments will offer citizens mobile-based identity wallets by 2024. … governments must make high-assurance digital identity easy to obtain and relevant for diverse target groups of end users and service providers." The European Union has mandated digital identity through eIDAS 2.0 that ensures "Member States offer a digital identity wallet (DIW) to citizens and businesses. According to the European Commission, "At least 80% of citizens should be able to use a digital ID solution to access key public services by 2030." "

Denmark is a leader in the use of digital IDs and government digital transformation. In June 2023 the government recognised the link between public service provision and digital exclusion and "entered into a political agreement on digital inclusion, which will contribute to a more inclusive digital welfare society that embraces everyone and provides the necessary help, the right tools and good alternatives available to digitally challenged citizens." Similarly, other countries like India and Estonia have been progressing a digital government agenda for some years, with vastly different civic populations. As digital services become more established and connected it is harder to opt out and in-person services are harder to access.

This leaves organisations who support digitally excluded people to fill gaps in digital service provision.

Inclusive cultural information frameworks create equitable futures

Many current ways of organising data and information are rooted in Western, colonial, oppressive systems. New approaches to the collection, sharing, translation and ownership of data are being taken to create structures that encourage and prioritise diverse voices (see Trend 1). Digital society experts surveyed by Pew Research predict that, "digital tools [will] be shaped in ways that allow people to freely speak up for their rights and join others to mobilise for the change they seek. [The experts] hope ongoing advances in digital tools and systems will improve people's access to resources, help them communicate and learn more effectively, and give them access to data in ways that will help them live better, safer lives. They urged that human rights must be supported and upheld as the internet spreads to the farthest corners of the world."

Cultural institutions like libraries are at the forefront of reassessing knowledge and decolonising collections, and also debates about what decolonisation looks like in practice. Janssen (2023) found that decolonisation is a contested term, with some people considering it impossible to remove colonial influences from collections and pointing out, "that the word may suggest that colonialism belongs to the past when this is manifestly not the case."

TREND 5: DIGITAL TECHNOLOGIES ARE UNEVENLY DISTRIBUTED

Global Indigenous Data Alliance. In combination with the FAIR foundation principles, the CARE Principles (collective benefit, authority to control, responsibility & ethics) provide a framework for data sovereignty that is increasingly being used across the world as it "includes the right to create value from Indigenous data in ways that are grounded in Indigenous worldviews and realise opportunities within the knowledge economy" for First Nations Peoples.

Developing inclusive cultural frameworks is important for addressing the preservation of endangered languages. UNESCO states that, "Optimistic estimates suggest that at least 50 percent of today's spoken languages will be extinct or seriously endangered by 2100. More pessimistic, but also realistic estimates claim that 90-95 percent will become extinct or seriously endangered by the end of this century. Most of these languages are Indigenous languages."

Things to think about:

Inclusive Data Practices: More data are being collected and generated, and "Collecting more disaggregated data and identifying barriers to inclusion can help enhance representation" OECD 2023. Additionally, "in order to reflect the lived experiences of minority and vulnerable groups within society, civil society and international organizations should advocate for the adoption of intersectional research approaches and the collection and analysis of data disaggregated by intersectional factors, including by gender/sex (where applicable)." United Nations

Questions

- What data do you currently have? What data do you need? What data should you be collecting (or not)?
- What access to devices and connections do people in your community have outside the library?

SUSTAINABILITY

TREND 6: INFORMATION SYSTEMS ARE USING MORE RESOURCES

Our information needs are impacting the planet

A green digital economy is necessary to manage the climate impacts of rapidly advancing information technologies, including environmental sustainability and societal wellbeing. New technologies are using large amounts of energy and materials to run and be maintained. As this tech grows, so too do the implications for the environment, especially in places where e-waste is a problem, and for countries already experiencing the effects of the climate crisis. AI and technologies like it rely on a great deal of computing power and energy to run. As AI scales up, so too do its resource requirements and the potential for material environmental effects.

In this section we consider the benefits of a green economy and the challenges of managing growing e-waste.

Opportunities

- New practices that consider the environment
- Reduction in resource use and cost savings

Challenges

- Climate change
- Increased need for technology and data
- Loss of memory and content

Joining the green economy is essential to address climate change

A **green economy** is defined as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services. UN Environment Programme

TREND 6: INFORMATION SYSTEMS ARE USING MORE RESOURCES

Our information needs are impacting the planet

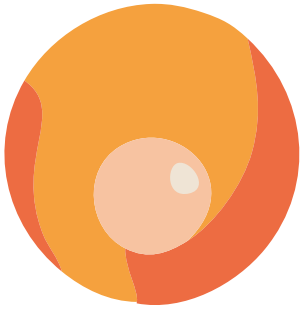
Increased connectivity has environmental implications that are most pronounced for those who are the least connected. The Alliance for Affordable Internet states that future policy must consider this as, "Those who are currently not connected are also most vulnerable to the effects of climate change. We need broadband policy that can connect the next generation of internet users while limiting the carbon footprint and climate impact that internet infrastructure and use carries" (Woodhouse 2021, 2). It suggests investing in digital skills and e-government services that can potentially reduce ecological burdens, bringing remote communities online to support better use of land and environmental protection while also supporting the right to repair devices to reduce e-waste in landfill (Woodhouse 2021).

The United Nations University Institute for Environment and Human Security finds that the trend to a greener economy and "prioritising well-being over relentless economic growth" can address some of the most deep-seated root causes behind risk tipping points and allow us to work effectively towards a future with fewer risks for all" (Eberle et al. 2023).

E-waste is a growing problem

E-waste: Electronic waste, or e-waste, refers to all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use. E-waste is also referred to as WEEE (Waste Electrical and Electronic Equipment), electronic waste or e-scrap in different regions and under different circumstances in the world. It includes a wide range of products – almost any household or business item with circuitry or electrical components with power or battery supply. The Global E-waste Statistics Partnership

The Global E-waste Monitor 2020 (Forti et al 2020) found that in 2019, "the world generated a striking 53.6 Mt of e-waste, an average of 7.3 kg per capita. The global generation of e-waste grew by 9.2 Mt since 2014 and is projected to grow to 74.7 Mt by 2030 – almost doubling in only 16 years. The growing amount of e-waste is mainly fueled by higher consumption rates of EEE, short life cycles, and few repair options."



SUSTAINABILITY

TREND 6: INFORMATION SYSTEMS ARE USING MORE RESOURCES

One approach to lessening the impact of our use of technology on the environment is a circular economy. A circular economy is "a systemic approach to economic development designed to benefit businesses, society, and the environment. In contrast to the 'take-make-waste' linear model, a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources." Re-using resources such as those available through Libraries of Things is one way for people to participate in a greener economy. The Victorian Government in Australia looked at circular economy trends across the globe and found that, "a circular economy needs collaboration. A major lesson we can learn from the most successful circular economies worldwide is that their circular initiatives are embedded across a range of government departments and agencies, with everyone seeing it as part of their work."

The OECD also notes the trend toward greener digital economies as, "Governments are ramping up public governance tools such as regulation, public procurement, budgeting, and infrastructure planning and decisions to achieve environmental goals. Some countries are applying more novel approaches such as anticipatory governance and behavioural insights to design, implement and promote green policies.

Greater efforts are needed in all these areas, as well as in leading by example in "greening" the public sector and accounting for results in government operations."

This has specific implications for those involved in the information economy who are large uses of hardware and data, and therefore a primary focus of any efforts to address the environmental impacts of information generation and management. Reducing the turnover of digital systems and hardware in response to the trend of accelerating redundancy of technology could address issues related to the loss of memory and content, along with wider issues like increasing electricity prices and more expensive devices.

Things to think about

The turnover of physical and electronic resources, the storage and archiving of materials and records, and balancing the needs of future generations with current practices. What happens to the resources that are taken out of circulation? Does everything need preserving and storing?

Questions

- Does your organisation have a plan or policy for minimising the generation of e-waste?
- How can libraries reduce or offset their environmental impacts?
- What strategies do libraries have for promoting the circular economy?

COMMUNITY

TREND 7: PEOPLE ARE SEEKING COMMUNITY CONNECTIONS

Creating places to share space and resources is key to building an equitable society

Community connections are an essential aspect of health and wellbeing., The World Health Organisation (WHO) has recognised social isolation and loneliness as a global health priority. As we are increasingly prompted to engage with digital services (see Trend 5) and many people's day-to-day interactions are online, they are prioritising and seeking out valuable in-person connections in their local community.

This trend is also compounded by the increase in people who are working from home and seeking out authentic, fun and creative opportunities for engagement with others. Local communities provide a sense of belonging, shared identity and social cohesion that can be missing in larger communities due to greater political and social divisions (see Trend 5). In-place activities can build social cohesion, connections across generations and create shared histories that include a greater diversity of local voices.

In this section we outline the trend toward creating shared knowledges through community, digital and place-based activities that seek to connect generations and improve social cohesion.

Opportunities

- Build community belonging
- Decrease social isolation and loneliness
- Improved health outcomes through access to information and community connections
- Intergenerational connections and knowledge sharing

Challenges

- Weakening social fabric
- Cost of living
- Reduction of in-person services
- Resourcing for in-person services and programs
- Increasing loneliness

COMMUNITY

TREND 7: PEOPLE ARE SEEKING COMMUNITY CONNECTIONS

Social isolation is a growing problem

Social isolation is a significant problem around the world with the WHO noting that, "Social isolation and loneliness are widespread, with an estimated 1 in 4 older people experiencing social isolation and between 5 and 15 per cent of adolescents experiencing loneliness. A large body of research shows that social isolation and loneliness have a serious impact on physical and mental health, quality of life, and longevity. The effect of social isolation and loneliness on mortality is comparable to that of other well-established risk factors such as smoking, obesity, and physical inactivity."

In the wake of the COVID pandemic and in the context of increased partisanship online, social cohesion is under pressure. A report from the Scanlon Institute in Australia found although there "were some signs to suggest that cohesion was returning to a pre-pandemic normal, declines in our sense of national pride and belonging, increasing financial strain and a weakening sense of social inclusion and justice were warning signs of further weakening in our social fabric."

Local communities are important, with social isolation and loneliness becoming bigger problems as our population ages. Nearly half of the population over 60 are expected to experience some form of social isolation or loneliness in their old age. Fakoys et al. (2020) state, "There is no one-size-fits-all approach to addressing loneliness or social isolation, and hence the need to tailor interventions to suit the needs of individuals, specific groups or the degree of loneliness experienced".

Local, place-based events and collaborations builds community resilience and capabilities

Global non-profit consulting firm FSG considers the role of tailored place-based solutions to issues noting that stakeholders, "can't apply a generic national approach to communities shaped by a long history of place, more funders are taking a place-based approach in their philanthropy, making deliberate and direct investments into specific places and regions, working across issue areas, and convening local stakeholders." This is important to note as the competition for funds in a slow economy is strong and organisations are expected to do more with less resourcing.

Local stakeholders involved in place-based approaches need to include businesses, governments, community services and social infrastructure like libraries.

COMMUNITY

TREND 7: PEOPLE ARE SEEKING COMMUNITY CONNECTIONS

In discussing the future possibilities of collaboration and collective impact, The American Library Association notes that, "Libraries and librarians are frequently considered key collaborators for projects that address big social issues – literacy, educational attainment, economic resurgence, health – and may increasingly be approached to participate in projects that utilize a collective impact model."

Seeking out place-based events in local communities is important for people who are seeking connection and offers the opportunity to engage diverse cohorts in building community capabilities. In their 2024 Trend Report, Dentsu Creative noted that a "Horizon Media survey revealed that 62% of young US adults said they would be "motivated to buy a product or service if it helps them achieve a sense of community belonging."

Storytelling connects people and generations

One way to connect communities is through intergenerational storytelling. This practice involves people at different stages in their life coming together to share their experiences and histories. The trend of intergenerational storytelling emerges from people's desire to connect to place and an awareness of the benefits that bringing people from different generations together brings. It recently emerged as an "arts- and humanities-focused approach to aging research" (Charise et al. 2022) and Dentsu Creative finds that along with, "our new storytellers trend, we see a desire to hear the authentic story of places from the people who know and love them best."

Growth in online communities

Along with seeking connections in local communities, online communities continue to grow as people seek connections based on their interests and hobbies. In research between Facebook and NYU's The Governance Lab, "a growing number of people around the world are finding meaning and a sense of belonging in online groups. According to the YouGov survey, in 11 out of 15 countries studied, the largest proportion of respondents reported the most important group to which they belong is a primarily online one." The report found that online communities enable more diverse people to be engaged as "These groups, some of which have huge memberships, remain emergent and largely unrecognised: they are outside traditional power structures, institutions and forms of governance." Of note, is the closed nature of many of these online communities (see Trend 1) that prevents any content and culture created being shared with others outside the community.

Gaming flourished during the pandemic and online gaming communities have proved important for reducing social isolation and loneliness (see above) (Ballard & Spencer, 2023).

COMMUNITY

TREND 7: PEOPLE ARE SEEKING COMMUNITY CONNECTIONS

Gaming communities are expected grow as the gaming industry is maintaining its pandemic-level highs.

Flexible working in flexible spaces

Since the pandemic in 2020, when many people in office-based jobs had the option to switch to working remotely from home, there has been a reluctance from remote workers to return to the workplace. In 2020, people around the world quickly became familiar with Zoom, Microsoft Teams and a variety of other collaborative technologies that emerged in response to the isolation requirements of the pandemic. These technologies are now integral to workplaces and have enabled new forms of collaboration and ways of working that have improved productivity. However, globally CEOs see the workforce fully returning to the office within three years, and hybrid working arrangements will be rare. KPMG's Global CEO Outlook also found that "as organisations continue to roll out their return-to-office plans, it is crucial that leaders take a long-term view that embraces the employee value proposition and encompasses the considerations and needs of employees to ensure that talent is nurtured and supported."

In light of the global talent shortage (see Trend 4) employers need to recognise the value that hybrid working arrangements can have for people who are able to work remotely. Global recruitment firm Hays says, "Many people are now used to greater flexibility in where they work and don't want to return to their previous routine. In fact, Gartner reports that over half of workers would look for a new job if their flexible working was impacted." Forrester predicts that Europe will outpace the US in flexible working options, with 40% of Europeans working remotely at least some of the time.

Remote working also enables people to live locally, and maintain important social and family connections. With the potential of better planned towns and cities in response to climate change, social infrastructure is key to meeting the changing needs of society.

Things to think about

The trend toward collaborative solutions to complex social problems is reflected in Deloitte's predicted trends in the public sector that there will be a, "Decline of "the theory of the firm" and rise of "the theory of the ecosystem." Most individual organisations increasingly see themselves as part of the larger community. Why labour in isolation when you can achieve win-win results through collaboration? Datafication, digitisation, and connectivity are dissolving traditional boundaries."

Questions

- What is the role of the library in addressing larger social problems like digital exclusion, poverty and education gaps?
- What more do libraries need to become catalysts for community life?

SCENARIOS CONTENT

CORE SCENARIOS

ADDITIONAL SCENARIOS

SCENARIOS AN INTRODUCTION

This next section of the Trend Report shares a set of scenarios – visions of what the future of information and knowledge could look like. These build on the trends set out in the literature review, exploring what the interaction of different ones could mean for the information and knowledge environment.

In each case, the scenarios look at the world from a perspective 5-10 years into the future, and look to take a relatively comprehensive view of the shape of our world. They often involve the same two trends, but demonstrate how they can combine in different ways, leading to different outcomes.

Clearly, these are works of fiction, but aim to make different versions of the future real. They are designed as a stimulus – even a provocation – for the reader to reflect on how well placed libraries and library and information workers are to work effectively under different conditions, and how we can be ready.

There are a combination of scenarios here, both from the core writing team – Alexander Burton, Dr Elizabeth Heck, Dr Kim Osman and Professor Michael Dezuanni, and from a range of external experts who have kindly shared their own perspectives.

The latter set also explore different ways of looking at scenarios, for example Supriya Kulkarni who uses quadrants to explore how trends might interact, and Mei Lin Fung who presents her scenario as a day in the life of a librarian.

The range of scenarios presented is deliberate, underlining the many different ways in which the future of information and knowledge could go. They are clearly also not exhaustive.

Following the scenarios, there are a set of suggestions for how you can work with these. However, an alternative is simply to read the scenarios, and reflect in each case on what the implications are for individuals, institutions and fields as a whole. Do also keep an eye on our website, as we will look to add further scenarios subsequently to enrich the collection.

SCENARIO 1

AI SCALPERS

INTRODUCTION

The 'IFLA Trend Report' notes that knowledge practices are changing (TREND 1). With the rise of generative Artificial Intelligence (AI) applications, including ChatGPT and Google's Gemini, such technology will have significant impact in the years ahead. As AI technology continues to evolve, we are still learning of the broader implications – socially, economically and most importantly, ethically. In our profession, we need to question when and how it is used and think critically about its potential for improving information futures. Furthermore, as the UN's Global Digital Compact suggests, there is a growing need to strengthen global governance around AI to ensure these technologies benefit all (TREND 2) This technology is, and will be used in institutions and organisations, including libraries and in education, that will have systemic impacts. We need to ensure that digitally excluded populations will not be further marginalised.

It is necessary then, to develop the skills and abilities to respond to such challenges and make the most of the opportunities new technology presents (TREND 4). As digital technologies continue to shape our world, the practical and critical skills to use devices effectively and navigate today's media and information environments will become more complex. Experts agree that digital skills will be essential in many future jobs, especially as AI transforms industries. For example, Bell et al. (2023) predict the global demand for AI specialists will reach 161,000 by 2030. Similarly, the OECD's 2023 report highlights that skills in creativity, data analysis, and communication will be vital to survive and to thrive in the growing digital landscape, and these skills are necessary beyond the workplace, and are also part of our daily lives.

In the context of libraries, AI has its own role in the search and curation of sources in addition to the clustering and linking of collections. We also need to consider how we train our emerging professionals in this ever evolving future and in relation to the broader societal and ethical complexities. The establishment of the international and community focused organisation AI4LAM (Artificial Intelligence for Libraries, Archives and Museums- https://sites.google.com/view/ai4lam) on "advancing the use of artificial intelligence in, for and by libraries, archives and museums also signifies the importance of such emerging technologies in the GLAM sector" is also of interest.

While the emergence of these technologies present some initial challenges, such as a global talent shortage, or workplace scams, there are also opportunities for improved online safety, increased media literacy that can lead to informed, creative and resilient communities and for digital skill and competency development to thrive in the digital economy. This is why it is significant for library and information professionals to be at the coalface of these developments.

SCENARIO 1

AI SCALPERS

This scenario explores TREND 2 and TREND 4 and highlights the potential vulnerabilities and possible unintended consequences of over-reliance on AI. As we work through the scenario, and with these challenges, opportunities with these trends in mind, what questions arise? Additional materials and resources are provided at the conclusion of the scenario and suggest further discussion points for how information professionals can navigate these challenges.

SCENARIO

There's a saying in engineering. A new technology, an old problem, and a big idea make innovation. But no one ever said that innovation doesn't make new problems for someone else. We are looking at a future where language and communication, in the form of AI models, are in the hands of engineers. Surely there is beauty and purpose in what they may build. But we can wonder as well, who is it being built for and who may seek to exploit it?

Picture a tired man in an office cubicle. His notepad is like the aftermath of a hurricane, washed out with fast handwritten notes, a coffee stain, and doodles of trees and pets. He works long hours and gets home later than he would like. He puts on a cheery voice when he answers callers' queries, directs them to where they need to go, or steps them through an online process that is new to them but painfully familiar to him.

He's a good man, but an imperfect one. His productivity wanes with the length of the day. He makes mistakes, uses space, and sometimes would rather be somewhere else. Now imagine a thousand of this man. For the company hiring him that's a lot of resources and a lot of mistakes. You can understand why AI Call and Queue software became so popular.

AI Call and Queue or 'Aicue' software is a catchall name for tools which assist in the AI automation of online and remote services. This particularly means booking and queueing systems, which automatically detect and fill vacancies by a learning model which organises by priority. But it also fills a large number of customer-facing roles. When the AI boom began, Aicue soon followed.

Aicue software packages are sold as subscriptions with different packages and tiers available to different sizes of company or institution. These vary from Fortune 500 companies in the United States to public transport, libraries, and hotlines for a range of services in countries around the world. Aicue software has also become a common cost cutting tool, allowing for smaller workforces and more predictable services. While there are many upsides to Aicue software for organisations, there are also drawbacks.

SCENARIO 1

AI SCALPERS

For example, as reliance on these AI tools increases, the capacity for bad actors to exploit this reliance increases as well. One important example is something called 'AI scalping'.

When Aicue software became popular, further AI tools for customers, clients, and patients to automatically book or reserve services became possible as well, allowing many to benefit from or exploit the automated nature of Aicue. In other words, personalised AI systems can now automatically book the next available doctor's appointment in a local area, or reserve rooms, classes, and service help at your nearest library. While beneficial for those who can afford these automatic services, those who cannot find themselves at a disadvantage with Aicue. Worse still, AI scalpers have begun using them to reserve large sections of online queues for a range of services, causing havoc and trying to sell these reservations at an inflated price even when the service ought to be free.

Whether you are trying to get tickets to the next Taylor Swift concert, trying to be placed on a waiting list for surgery, needing legal advice, or just trying to read the latest bestseller, AI scalping can impact you. Getting your spot on a digital queue used to cost nothing but now can cost the price of a cup of coffee, or more for those who are desperate or unaware that they are being scalped. While it is a nuisance, many pay and move on.

However, the people who are most impacted are often the ones who are listened to the least. This includes people with language barriers, a dependency on particular services, and the least money. For some it means missing an appointment with a support worker or information provider, or being able to afford one less meal a week.

In the same way as people have become accustomed to hearing about a new data breach on the news and the potential buying and selling of their personal information online, Aicue 'corrupting' has also become an occasionally newsworthy occurrence. Aicue corrupting is when a malicious actor threatens to feed a large amount of disruptive information into an Aicue system, teaching it false patterns and disrupting its provision of services. The threats tend to be sent to large service providers and are regarded as the frontline of a new generation of cyberattacks and blackmail. While sometimes these threats can be ignored, in other instances very real vulnerabilities are present. One large hospital was mired in scandal after it was targeted by Aicue corruption blackmail, and it was found that a number of its organ transplant lists were organised by Aicue software with no back-up.

The appearance of AI scalping has also coincided with an uptick in unemployment and underemployment. Afterall, Aicue software put many people out of work. While some employees were reskilled to manage Aicue systems, there simply aren't as many seats to fill.

SCENARIO 1

AI SCALPERS

The employees who were able to retain their jobs were often those from higher socio-economic backgrounds, for example because they had better access to education qualifications. This increase in unemployment exacerbates the damage done by AI scalping because more people have less money to spare. As already mentioned, the price of a cup of coffee is a big deal on a tight budget. Occasionally AI scalping is talked about in the news. One story briefly went viral about a woman called Nhu who used to earn her living from two part-time receptionist jobs. Within the space of two months, she lost both to Aicue software. Shortly afterwards her mother needed an appointment with a medical specialist. Nhu needed to sell her car for an early place on the list, all just to access cheaply available prescription medication.

"Just basic services are harder now. How am I supposed to live this way?" Nhu was reported saying. "Things we took for granted are more expensive. And no one else cares because they're not the ones paying." Nhu's was an extreme case. But it nevertheless shows how AI scalping can impact people's lives.

Some organisations have reintroduced phone or face-to-face booking. Or 'manual' booking as it is now called. This was welcomed particularly by older customers, and others who struggled adapting to automated systems. But few large providers have reached the same number of staff they had before. Waiting times for a real member of staff are exceptionally long by old standards and many employees have few real colleagues, instead bounce around lonely between multiple AI systems.
Some AI companies release software to identify and combat AI scalping. These can be effective, but in most cases the tools are expensive subscription services. Not all businesses and organisations can afford them. Or at least, not the most up-to-date versions. Even some public organisations don't have access to up-to-date anti-scalping software, either because they aren't budgeted for, or legislation to implement them is slow to pass. Often those who need anti-scalping software the most are those who have the least access to it, like regional schools and universities.
Other measures are being implemented to address AI scalping. Many bookings now require more personal information. While this helps against scalping, it often makes admin tasks harder in new ways. Staff and AI are expected to handle more identity checks. And who wants to read out a personal identification number just for a basic booking, query, or waiting list? Not to mention some scammers take advantage of this new reliance on ID as well. Fake phone numbers and websites for public and private institutions phish for customer ID. Those that fall for the scams are then directed to fake hold lines, sometimes only realising they have been scammed two, three, or four hours after being left waiting.

For all the convenience offered by streamlined booking, queueing, and access services, what seems to have benefited some people has complicated the lives of others. The question now is what innovation comes next?

ADDITIONAL RESOURCES

RESOURCE NAME	URL
Pact for the Future (UN)	https://www.un.org/en/summit-of-the-future/pact-for-the-future-revisions
Information Integrity (UN)	https://www.un.org/en/information-integrity
Australian Library and Information Association (ALIA). (2024). AI, libraries, and the changing face of information literacy (Australia)	https://www.alia.org.au/Web/News/Articles/2023/2-February-2023/ALIA_Blog_AI_Libraries.aspx?utm_content=bufferc592d&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer
AI4LAM (Artificial Intelligence for Libraries, Archives and Museums) (International)	http://www.ai4lam.org
Semuels, B. (2023, December 15). The Government Finally Did Something About Robocalls. Time Magazine. (United States)	https://time.com/6513036/robocalls-government-action/
International Literacy Day (UNESCO).	https://www.unesco.org/en/days/literacy
Literacy (UNESCO): Literacy Promoting the power of literacy for all	https://www.unesco.org/en/literacy?hub=66710
Media and Information Literacy (UNESCO)	https://www.unesco.org/en/media-information-literacy
Australian Media Literacy Alliance (AMLA) (Australia)	https://medialiteracy.org.au/about/
The National Association for Media Literacy Education (NAMLE) (USA)	https://namle.org/

ADDITIONAL RESOURCES

RESOURCE NAME	URL
Media and Information Literacy Alliance (MILA) (UK)	https://mila.org.uk/
United Nations (UN). (2024). Governing AI for Humanity. Final Report.	https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf

SCENARIO 2

THE FUZZY RECORD PROBLEM

INTRODUCTION

Digital transformation of information systems has raised new challenges in relation to the preservation of intellectual freedom and the integrity of information resources. One of the most immediate concerns facing librarians and information professionals today is the growing pressure to modify, adapt or censor content based on social, political, or ideological considerations. This pressure can come from a variety of sources, including governments, corporations, and even individuals.

As governments try to regulate established digital and social media platforms, there's a risk of overstepping, which could lead to censorship or restricted access to information. In some countries, defamation laws and internet shutdowns have already been used to limit free expression. The World Economic Forum also warns that in the name of "digital sovereignty," these efforts may lead to broader repression of information, thus further limiting press freedom and access to diverse sources of knowledge globally (TREND 1).

As further noted in TREND 3, the early internet was driven by the vision of free and open access to information, empowering people to share knowledge beyond traditional institutions. Yet, over time, these ideals have become entwined with a digital economy dominated by commercial platforms that monetise user data. The Open Future Foundation calls for renewed efforts to reconcile these original open-access principles with the challenges and realities of today's digital society, working towards a more open and user-centred digital future.
Advocates for open culture promote the development of open information systems to preserve and share digital content that might otherwise be lost if commercial platforms shut down.

However, this effort is complicated by increasing control over how content is accessed and monetised. The issue of equity also arises, as the ability to offer free access to content often depends on an organisation's financial resources, creating barriers for those with fewer means, much like the challenges faced in academic publishing (TREND 3).

In addition to these external pressures, the development and widespread adoption of artificial intelligence (AI) technologies has introduced new possibilities for the filtering and control of information. Personalised censorship, enabled by AI algorithms, can tailor the content that individuals see based on their perceived preferences, beliefs, or behaviours.

SCENARIO 2

THE FUZZY RECORD PROBLEM

This can have significant implications for the diversity and quality of information that is accessible to the public (TREND 2). We need to consider frameworks for cultural preservation, how knowledge is created, stored and shared, and the role of regulation in knowledge environments. We also need to think about the role of public institutions in equity and access to knowledge and technologies, and whose voices are engaged in the provision and contribution of knowledge in regard to equity and accessibility (TREND 5).

This scenario examines TREND 1, TREND 2 and TREND 3 by exploring the long-term implications of the social and political pressure to modify content and personalised censorship through AI tools. By understanding the potential risks and challenges associated with these developments, librarians and information professionals can better advocate for the preservation of intellectual freedom and the integrity of information resources in the digital age. Additional materials and resources are provided at the conclusion of the scenario and suggest further discussion points for how information professionals can navigate these challenges.

SCENARIO

It was slow burning. Something many had seen progressing for a long time. Slow enough that anyone who first gave the warning, having not immediately been proven right, eventually had their warning forgotten. But like that old myth about the frog in the boiling water, a crossing point was being reached.

From novels, magazines, printed journals, discs, and more, 'hard' media had been becoming less common for years. The information revolution had made several turns, and the latest had been the growing reliance on digital platforms and online storage. Many opportunities for equity had come from 'soft' media, and many unique types of content had been created that weren't possible on paper, or even traditional film and television. But as the dependency on soft media grew, as is often the case with any dependency, so grew a vulnerability.

Already access to soft media was not distributed evenly. While it offered many opportunities for equity, these were not always capitalised on. Data archives, digital media, and even basic software often required subscriptions to access, to say nothing of national censorship and content blocking. A lot of online media has also tended to be curated for a particular cultural vantage point, and filled with information and media that prioritised certain places and points of view over others.

SCENARIO 2

THE FUZZY RECORD PROBLEM

Further, as digital literacy expanded in some places, the gaps with others expanded as well. Afterall, the infrastructure and device requirements for participating in the digital world kept growing, and while many countries could keep up or join in, many others, and disadvantaged groups within these countries, could not. The reliance on libraries grew where there was this digital divide.

But that was only half the picture. The downturn in hard media combined with existing social and political pressures. Soon there were legal challenges and rulings and as you will see not all of them were good. These three factors made a major change to our relationship not only with media, but information and the historical record more generally. The stability of published media changed. The same title, author, and even identification number no longer guarantees that any person will see the same article, essay, film, or novel as someone else.

Countless versions now appear. Some are legitimate and agreed to by their authors or publishers. Some less so. Some are modified by extensions on a user's device or network to censor for certain information, like depictions of nudity or violence. Others are modified subtly by website cookies, viruses, and advertisements, promoting or changing the brand of an item or service a character uses, or even tweaking political sentiments inferred by the language of characters, academics, and journalists.

Thanks to the hyperconnectivity of the internet and new AI technology, you can read or view anything through the lens of the opinions and view that you like – or perhaps, that your government likes. But you can't create anything you like. It may be unrecognisable to you by the time it reaches an audience.

No one set out to change the fundamentals of publishing. But many people did have small changes they wanted to see in an individual work, or a topic they wanted censored for certain people. Perhaps it was an error they saw in a research paper that they wanted corrected without a drawn-out process. Maybe it was an entertainment conglomerate that wanted to update its older animations to reflect new values. It could even be the author themself, forever tweaking and adjusting their published work in a way that used to require whole new editions being printed. Everyone had something.

There were examples of this being done before the 'fuzzy record' problem began, as it would eventually be called. Puffin Books came under fire in the early 2020s for making substantial revisions to the works of Roald Dahl, intending to no longer sell the original versions, with public backlash making the publishers change their mind.

SCENARIO 2

THE FUZZY RECORD PROBLEM

Earlier examples could probably be listed as well. But now AI 'sensitivity reading' is common for new and old publications alike, with libraries both expected to stock the versions different readers are familiar with and coming under fire for providing access to these same versions that others regarded as wrong or inappropriate.

Different publishers and institutions have different standards for what is sensitive. These differences follow existing political divisions, deepening echo chambers and polarising already distant viewpoints. Fiction and non-fiction content that is violent, racist, sexual, queer, if you can name it at least one group wants it altered. Indeed, even references to undesirable moments in history and negative depictions of particular political leaders can be changed. Many large populations being introduced to the online world for the first time are given a misleading impression about the rest of the globe, unknowingly seeing sensitised and altered versions of how other countries and people tell their own story.

But to return to an earlier point, how did this happen? The many individual motivations to change media are the same as before, but new technology has made this much easier. The dominance of soft media, combined with new detection and correction tools, has made amendments an order of magnitude faster. As a news article about the fuzzy record problem explained: "In the same way that a single amateur VFX artist in the 2010s could make better effects than a whole professional team a generation earlier, the integration of authors, products, and consumers today has made the past issuing of revisions look like child's play." Or at least, that's what one version of the article said. The quote is probably different in countless others.

People weren't oblivious to the fuzzy record problem. Uncertainty is fun when it's about how a movie ends. Less so when it's about societal change. Many turned to large players in the multimedia and media platform industries, like Alphabet and Meta. But when these corporations imposed some controls on what was posted and edited on their subsidiaries like YouTube and Facebook, this wasn't an exercise in good will. Naturally they were motivated not just by their own values, but also by profit and politics. The versions of media that they allowed on their sites were often those that they most agreed with, particularly ones that painted them in a positive light. It was a push and pull between needing somewhere to access more diverse platforms and needing something to regulate and document the new versions of media.

SCENARIO 2

THE FUZZY RECORD PROBLEM

New technology had made acting on old social, political, and profit motivations possible, but there was one final wave that burst the dam. Did you catch what it was? Acts of alteration, censorship, manipulation, and parody needed to be ruled on in law. This was particularly a matter of intellectual property rights, though other legal fields played a part as well. But the courts were slow. When some top courts eventually weighed in on the topic not only had the changes already begun, but infamously the Supreme Court of India, US Supreme Court, and Court of Justice of the European Union all reached different decisions. No one had stood up and defended the right for media to be non-fungible. With inconsistent decisions across different courts, the fuzzy record problem missed its chance to be cleaned up quickly. Like an ink stain, the longer it was left, the harder it was to get out.

Now old and new examples of media are subject to different rules in different countries, with altered versions circulating almost as soon as something is released. Or otherwise, any version of a piece of media are displayed differently depending on the extensions, cookies, and personalised ads or a user's device or network. With such a reliance on digital media, this all became normal.

But there is a final victim to mention now. That is the historical record.

Without stable media, the recording of history was changed for the worse. This included modifying existing histories like a palimpsest. But even more so the ability to record the present had become a nightmare of record keeping. As digital media would be continuously revised and new versions made for every application the original would become increasingly hard to find, ad infinitum. There wasn't a single history of the world, but a million. A million different realities that now needed to learn how to communicate.

SCENARIO 2

THE FUZZY RECORD PROBLEM

ADDITIONAL RESOURCES

RESOURCE NAME	URL
Australian Broadcasting Corporation (ABC). (2024, September 11). AI and reading. The Philosopher's Stone. Radio National. (Podcast) (Open Access).	https://www.abc.net.au/listen/programs/philosopherszone/ai-and-reading/104238772
Knight, L. (2023, March 15). Sensitivity readers: what publishing's most polarising role is really about. The Guardian. (UK) (Open Access)	https://www.theguardian.com/books/2023/mar/15/sensitivity-readers-what-publishings-most-polarising-role-is-really-about
Vernon. H. (2023, February 19). Roald Dahl books rewritten to remove language deemed offensive. The Guardian. (UK) (Open Access)	https://www.theguardian.com/books/2023/feb/18/roald-dahl-books-rewritten-to-remove-language-deemed-offensive
AI Governance Alliance (World Economic Forum):	https://initiatives.weforum.org/ai-governance-alliance/home
Bicknell-Holmes, T., Watson, E., & Cordova, M. (2024, July 30). Verifying facts in the age of AI – librarians offer 5 strategies. The Conversation. (USA)	https://theconversation.com/verifying-facts-in-the-age-of-ai-librarians-offer-5-strategies-233628
Bradley, F. (2022). Representation of libraries in artificial intelligence regulations and implications for ethics and practice. Journal of the Australian Library and Information Association, 71(3), 189–200.	https://doi.org/10.1080/24750158.2022.2101911
UNESCO (n.d.). Guidance for generative AI in education and research (UNESCO)	https://unesdoc.unesco.org/ark:/48223/pf0000386693
Upshall, M. (2022). An AI toolkit for libraries. Insights: the UKSG journal. https://doi.org/10.1629/uksg.592 (Open Access)	https://insights.uksg.org/articles/10.1629/uksg.592
Question Machines. (2024). AI in the Library.	https://www.questionmachines.net/

SCENARIO 2

THE FUZZY RECORD PROBLEM

RESOURCE NAME	URL
Artificial Intelligence for Libraries, Archives & Museums (AI4LAM) (International)	www.ai4lam.org
AI4LAM: Teaching and Learning Working Group (International)	https://sites.google.com/view/ai4lam/news/training-resources

SCENARIO 3

ROOM 1701

INTRODUCTION

One of the most immediate concerns for society is the political exploitation of aspects of contemporary information and media systems. Such examples of this exploitation include the use of 'deep fakes', a form of synthetic media that can convincingly manipulate or fabricate content and are a significant example of this threat (TREND 1 and TREND 2). The use of AI to create deep fakes has serious implications for both misinformation and disinformation. It is also important to remind ourselves of the difference between 'misinformation' and 'disinformation'. Here we note briefly that misinformation is defined simply as "false information that is not intended to cause harm", and disinformation is seen as "false information that is intended to manipulate, cause damage and guide people, organisations and countries in the wrong direction". As noted by Bell et al. (2023) in the IFLA Trend Report, AI can generate convincing, low-cost, and highly personalised content that can be misused, as we see with the creation of deep fakes – videos, artificial or doctored images, and speech used for deceptive purposes.

Without the use of specialised training or tools, such AI-generated content can be almost indistinguishable from real media, and it is still rapidly evolving. This compounds existing challenges in reducing misinformation as these deepfakes circulate alongside genuine information, making it harder to detect disinformation (TREND 4). Therefore, our trust in governments, institutions and others is challenged (TREND 3). As a result, this is where we revisit TREND 1 and TREND 4, noting that knowledge practices are changing and that the skills involved are growing more complex as a result. Therefore, media and information literacy are more important than ever and are much needed in the wider community.

This scenario primarily explores TREND 3 and TREND 4, although we can consider the other relevant trends discussed as we explore the ideas involved in this speculative future. By understanding the vulnerabilities of our information systems and the potential dangers of deepfakes, librarians and information professionals can play an important role in promoting critical thinking, fostering media and information literacy, and in maintaining the integrity of our democratic processes. Additional materials and resources are provided at the conclusion of the scenario and suggest further discussion points for how information professionals can navigate these challenges.

SCENARIO 3

ROOM 1701

SCENARIO

The election was only a few months away. There was certainly no love lost between the two major contenders for being Chancellor. But if the petty barbs and arguments in their debates and at their rallies already drained their personal goodwill, the vitriol and hatred in their respective camps sowed enmity. That's to say nothing of the many outside groups and governments who enjoyed the division, either as the fun of political theatre or as the opportunity for their own gain.

It used to be said that politics was the art of compromise. More often now it's called the art of the spin. In other words, how you turn coverage and conversation on any topic to your advantage. Whether it was true or not, this perception of politics and politicians showcased a growing mistrust. It was a mistrust that tarnished not only the politicians, but the media cycles that spun their stories, and the public institutions associated with them. Trust in institutions had also been a quagmire for the last election, ending in division and rumours of an aborted coup. These were not happy times.

News coverage had never moved on from that last election. No matter the local stories, from unseasonal rains to the small-town economy, and even local festivals and achievements, increasingly the shared experiences in micro life lost out to the churn of macro-politics.

Meanwhile large corporations had continued to buy out or out-compete local news outlets. Print media was a hard business these days. On top of this, even in the larger news corporations there were fewer journalists, larger workloads, and a struggle to cover, edit, read and re-read, and verify stories to the standards expected of good journalism.

Behind closed doors disenfranchised journalists even called much of the country a 'news desert', with fewer local outlets fostering trust within regional and unprofitable areas, leaving a lot of slack to be picked up by libraries and community leaders. In this election, and for much else, more of the personalised news work was picked up by social media. It had its advantages, yes, like speed and participation for anyone who had something they wanted to share. But there were downsides as well.

Experts warned about the weakness of this 'information ecosystem'. Much like a natural ecosystem, they said, with less diversity came greater vulnerability to shocks. They would be proven right. NGOs, news media, and other fact-checking services were overstretched.

When each campaign made misleading statements about the other's policies, for example, an informed article responding to the claim could usually only be published by the time the statement had already gone viral.

SCENARIO 3

ROOM 1701

Even when it could get out in time, it needed to come from a trusted face to be believed. As one red campaign aid said, speaking on the condition of anonymity:

"We don't limit ourselves strictly to policy fact. Policy is important, of course, but what's that mean without image? Image for our own candidate of course, but also how we show the other option. We all know what she's like. If that means putting a couple of words in her mouth, so be it. The fact is, we all know her policies are bogus already. So showing what we all already know, what's the harm in that?"

This media landscape was the perfect landing ground for two different news stories, that came down unlooked for like flying saucers. Both were about the red campaign candidate and showed him in a heinous light. One was embarrassing video footage from a foreign hotel room, shot with two hidden cameras. The other was a voice recording and several transcripts, originally said to be lost from the record, that showed him pushing for military action to delay certifying the last election. They had both been 'leaked' to major news outlets, though the video footage was also sent indirectly to online influencers. Clearly, each had the capacity to compromise the red campaign candidate, but each did so in different ways and had different origins.

While the major news outlets agreed not to immediately publish the 'Room 1701 Tapes', as the hotel videos came to be known, the influencers who also received them were not so judicious. Even before teams could be put together to investigate their legitimacy, video clips were already being entrenched in the public's consciousness. The tapes blew up online. The news embargo now seemed pointless, and journalists also sank their teeth into the more delicious of the two stories.

Both candidates were quick to speak about the posts, memes, and reels that followed. Their reactions fitted the broader narrative that each already presented in their campaigns. Their remarks, given within longer speeches, were mostly seen through social media videos and short news soundbites. At one campaign event the blue candidate stated:

"This election is not only one of the most important in our lives, but the most important judgements of character you'll ever be asked to make. I ask you, when you cast your vote, what kind of a person do you want as your Commander-in-Chief? You want someone who got here through the work they did in the houses of government of this country. Not from the hotel rooms of our enemies."

Meanwhile the red campaign candidate said to supporters: "I think it's shameful. I look at this and I think what has happened to our country? We used to be great but you see this and you think, who would do such a thing? You can't believe anything these blues come up with. I am the most deepfaked person in the history of our country. No one's been more deepfaked than me."

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ROOM 1701

Business leaders were sought for comment by journalistic outlets. Indeed, their views had already been viewed as an indicator of broader economic confidence in the two campaigns. However, few could be brought to speak on the issue, ostensibly to maintain a sense of independence from the election cycle. But more specifically, because the authenticity of the tapes was still in doubt. Few business leaders, however, were asked about their opinion on the more technical story, even when it was verified as authentic. What was it even about? It had slipped from people's minds. It was easier to follow the social media bonanza of a juicy scandal.

Not much time was needed to confirm the Room 1701 tapes were fakes. While their creation was highly sophisticated, expert analysis had prevailed. But news of this outcome was hard to spread. The blue campaign vigorously denied making the hotel tapes but weren't so vigorous with sharing reports it was faked. A spokesperson instead raised how the red campaign had themselves run a campaign of disinformation, distorting or lying about the blue campaign candidate's record on a range of issues and insisted that it was the blue campaign "that stood for integrity and a return to normalcy in this election." Rather than assisting with educating the public, they used it in their attack ads instead.

Talk of the attempt to weaken democracy was in the ads as well, but publicly it had been drowned out by the laughter, incredulity, parody, and memes of the Room 1701 tapes. Flirting with a coup had at best become second fiddle to the tapes story, which had a head start in the media cycle. But at worst, it was discredited in the eyes of many through its association with the gaudier, louder, and less legitimate attack on the red campaign.

While certain groups of voters switched their leanings in news polls, others actually had their commitment to the red campaign strengthened. Their trust in news outlets that ran the Room 1701 story diminished further. The red campaign candidate said the tapes were a deep fake and he was right. So why would his claim that the coup story was fake be any different? Why not any of the other attacks levelled against him as well? His supporters were disenfranchised with the press, and with good reason. If their trust could ever be regained, it wouldn't be through mass media.

Rather than tell you who won this election between the red and blue campaigns, I will tell you the choice that was given to the new chancellor after the election. Them, the large news outlets, influencers, NGOs, business leaders, and others. What actions would they take, if any, to play out the next election differently? More than that, who among them would look beyond the political pageantry and into the less sensational, less exciting, and less easy call for help in local communities. When seeing is no longer believing, it's not the chancellor who builds back trust. It's you.

ADDITIONAL RESOURCES

RESOURCE NAME	URL
OECD. (n.d.). Trust in government.	https://www.oecd.org/en/topics/sub-issues/trust-in-government.html
OECD. (2024). OECD Survey on Drivers of Trust in Public Institutions – 2024 Results: Building Trust in a Complex Policy Environment.	https://www.oecd.org/en/publications/oecd-survey-on-drivers-of-trust-in-public-institutions-2024-results_9a20554b-en.html
Media and Information Literacy (UNESCO)	https://www.unesco.org/en/media-information-literacy
Australian Media Literacy Alliance (AMLA) (Australia)	https://medialiteracy.org.au/about/
The National Association for Media Literacy Education (NAMLE) (USA)	https://namle.org/
Media and Information Literacy Alliance (MILA) (UK)	https://mila.org.uk/
Media Smarts (Canada)	https://mediasmarts.ca/
The African Journalism Education Network (Ajen) (Africa)	https://ajenafrica.com/

SCENARIO 4

MY VOICE, MY SOVEREIGNTY

INTRODUCTION

A growing field of information for librarians and information professionals in the digital era is the increasing need for local language materials and resources. This is motivated by a need to create fairness in accessing information and to guarantee that decisions are influenced by a diversity of viewpoints.

This speculative future scenario, focusing on TREND 1 and TREND 5, explores the intricate world of knowledge, highlighting the increasing need for content from local sources and the need to honour, respect and listen to Indigenous communities. Librarians and information professionals have a significant role to play with ensuring equal access to information and working with communities to preserve and promote their cultural heritage according to their needs (TREND 4).

As knowledge practices change to include more diverse voices (TREND 1), it highlights issues of cultural autonomy and the right of Indigenous and First Nations communities to manage their own knowledge. Some members of Indigenous cultures and communities may not want their knowledge to be included in global systems, public knowledge and private or sacred information may have differences. These differences, combined with the growing digitalisation of data, lead to complex issues concerning digital independence and the importance of the cultural rights of Indigenous communities.

Creating and maintaining access to digital technologies and information systems for different groups in an equitable and affordable way will be important to ensure a diversity of voices in future knowledge and information systems.

As we note in TREND 5, despite the growth in global connectivity, around one-third of the world's population – about 2.6 billion people – remains offline, potentially missing out on the benefits of the digital economy. These individuals and communities are predominantly in less developed regions and include marginalised groups. According to the International Telecommunication Union (ITU), internet usage is closely tied to a country's economic status. In 2020, 90% of people in high-income nations were online, and by 2023, this figure rose to 93%, moving closer to universal access (ITU, 2020). However, disparities still exist, particularly in developing areas. This scenario explores TREND 1 and TREND 5.

SCENARIO 4

MY VOICE, MY SOVEREIGNTY

SCENARIO

They say knowledge is power. But for most of us, knowledge is something more personal. Something lived. No doubt it can be powerful. But it is also culture, purpose, and family. We don't teach our children so we have power over them, or so they have power over others. They are taught because they are loved. Giving them a place in the world, and a way of understanding and relating to it, that is the kind of connection that love is all about. To know and respect, and to be known and respected in kind. Love is universal, but knowledge is not. It's situated. Like tending a garden, there are some general guidelines that stay the same while everything else changes. The texture and content of the soil, the weather and the way the seasons fall, the shadows of the mountains, buildings, and trees, even the animal neighbours and our relationships with them, all and more can be different. To know how to garden in one place doesn't always mean knowing how to garden in another. Representing this diversity matters because it reminds us that no one on earth knows everything. As you'll see, this goes far beyond the garden.

In the near future, showing representation has grown in importance. From the hunt for old stories to be retold on the big screen to businesses and local governments taking equity roles and minority and Indigenous consultation more seriously. New generations have grown up believing in a cosmopolitan, representative, and interconnected world. But that is not the whole story.

In this future, knowledge sovereignty also has its supporters. But defining what it means is trickier. Indeed, control of knowledge means different things to different people.

In this interconnected world, the call from Southern countries was simple. It was one Indigenous and minority voices were happy to echo. "We see more books, more art, more TV, more films. We see more services, more news, more websites, more talk in the streets. We see all this. But why is it in so few languages? Why is so much made for so few, and how many of our children must learn a foreign tongue to know what talk is growing out of their own soil and water?"

It was a good question. Indeed, the question was picked up in those foreign Northern countries whose languages had swallowed so much. Only, they saw it through a different lens. They heard the call and their own public answered. "Yes! We'd love to hear more of your stories, to know your truths, and get you on our screens. We know a lot of bad has happened to you in the past. Isn't there an opportunity to share our voices, to make yours more online like ours? There must still be things you know that we don't. And we'd very much like to see them."

Different publics, different voices. There were many points they agreed on, but their purposes differed. But it was enough to begin with.

SCENARIO 4

MY VOICE, MY SOVEREIGNTY

Institutions and services that already supported minority and Indigenous groups in their own languages received renewed attention. Auto-translation software boomed. Texts judged to be classics in old colonial countries like The Lord of the Rings, Moby Dick, and Harry Potter began being published in endangered languages. Sometimes these were the first texts published in a language in years. In a couple of instances they were the first texts to be formally published in a language at all. Some of these efforts were used and celebrated. But also, in remote communities and among those whose way of knowing the world had been pushed near the precipice of extinction, what was there of their own culture in the story of an English boy going to a magic boarding school? And when the bilingual saw some of their own traditional stories translated into blockbusters in English, Spanish, and French, they sometimes could hardly recognise them.

Efforts were most successful in countries where speakers of vulnerable languages were in government at different levels, could participate in services, and played a part in the business community. Other places needed more coaxing. This public kind of representation had become popular, but nevertheless some members of different Indigenous and minority groups had growing reservations. The fact that their knowledges and languages weren't widely accessible had value in itself, they argued. It was the ability to tell an insider from an outsider. It was safety from police and other government agents who in the past had tried using their languages to trick and persecute them. It was the importance of privacy and tradition, which for some people was one of the last dignities untouched by the rapidly changing world. While they were happy to share knowledge, it had much to offer environmental conservation for example, they wanted to do it on their own terms.

There were some international principles in place about respecting the authority of language holders, of treating different knowledges responsibly and ethically, and sharing the benefits of their use with their creators and custodians. While there were instances of 'brown washing' by some organisations following the representation trend (i.e. trying to look supportive of people of colour, and in this case particularly Indigenous people, without actually being committed to them). But for the most part there was good will. This made the fallout and divisions that followed all the more tragic.

Some organisations, thinking they knew a universal way of appraising and transferring value, began campaigns to buy the rights to Indigenous and minority languages, and the wealth that was within them. It's a bit like how a company can buy land and dig it up for its minerals.

SCENARIO 4

MY VOICE, MY SOVEREIGNTY

It sounds unrealistic if you imagine languages with more than 30 million speakers like Sindhi or Ukrainian. But a little-known regional language with just a few thousand? That was possible, and sometimes even pressured and lobbied for by their governments and well-meaning outsiders. But for many communities themselves, it was a fundamental cultural misunderstanding. These organisations argued that this was a way of compensating communities in a way that could immediately be reinvested into local livelihoods.

Further, more than just being a show of a modern advanced society, public representation and understanding across as many groups as possible was a net-positive for humanity, so they argued. "Cataloguing this data", they said in their own words, "could revolutionise not only anthropology and linguistics, but psychology, neuroscience, sociology, history, policy communication, public relations, and of course marketing." Some groups came on board, and some individuals shared translations without community permission. But most were outraged.

"This is just a new face on an old kind of extractivism", a young activist said in a speech that was widely circulated online. "Take from poorer countries and desperate people, because they are desperate enough to sell. Use it for your own wants and goals without caring just how personal and sacred it was for the people you took it from.

And just like every other time, you'll never really use it to make life better for them. You tell a feel-good story about how it's important for everybody, that it connects everybody, so when you use it to just benefit yourselves you can pretend that this is somehow shared too. Have you heard of bioprospecting, where they tell us the only reason a species has value is for categorising and studying for bioresources, for researching and selling? They did it to our environment and now they're doing it to us. Our tongues are only as good to them as the money they make off them. It's linguaprospecting."

Who gets to profit off a language and a culture? Does documenting and sharing them make them safer, or in more danger? It looks like knowledge can be power after all. It's strange how we can value the same things, and value communication in particular, but still misunderstand each other. If languages are situated ways of knowing then each one that goes extinct means losing unique and beautiful understandings of ourselves and our world. But rather than incorporating them into another knowledge system, how do they stand on their own feet? What pushed them towards extinction to begin with? If we want to preserve the world's languages, how can we do this by empowering and recognising connection, and not only tick a box or filling a spreadsheet?

ADDITIONAL RESOURCES

RESOURCE NAME	URL
Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS): Curriculum resources	https://aiatsis.gov.au/education/curriculum-resources
Learning Ground—ACER (Australia)	https://opac.acer.edu.au/ierd/
Public libraries and Indigenous Knowledge Centres (IKCs) Roadmap State Library of Queensland (SLQ). (Australia).	https://plconnect.slq.qld.gov.au/about/public-libraries-and-ikcs-roadmap
Indigenous Knowledge Centers (IKC) and Rural Libraries Queensland (RLQ). State Library of Queensland (SLQ). (Australia).	https://plconnect.slq.qld.gov.au/manage-library-or-ikc/ikc-rlq-hub
Indigenous Knowledge and the UN Decade of Indigenous Languages (UNESCO New Zealand)	https://unesco.org.nz/priorities/indigenous-knowledge-and-the-un-decade-of-indigenous-languages
First Nations Data Centre (Canada)	https://fnigc.ca/first-nations-data-centre/
Learning resources about First Nations, Inuit and Métis across Canada – Government of Canada	https://www.rcaanc-cirnac.gc.ca/eng/1621447127773/1621447157184
Internet Society – Community Network Do-It-Yourself Toolkit (International)	https://www.internetsociety.org/resources/community-network-diy-toolkit/
Connecting in the Gulf: digital inclusion of Indigenous families living on Mornington Island (Report (Australia)	https://apo.org.au/node/322115
State Library of Queensland (SLQ). (n.d.). Deadly Digital Communities: Digital skills training program for Aboriginal and Torres Strait Islander people. Public Libraries Connect. (Australia)	https://plconnect.slq.qld.gov.au/programs-and-resources/completed-programs/deadly-digital-communities
"What is digital inclusion?" (New Zealand)	https://dns.govt.nz/digital-government/programmes-and-projects/finished/digital-inclusion/what-is-digital-inclusion
The Digital Equity Coalition Aotearoa (DECA) (New Zealand)	

SCENARIO 5

SHORT FORM

INTRODUCTION

Social media, the way many of us spend our time, connecting with people, having fun, being entertained, and being informed, has evolved over the last decade. New platforms have emerged and established platforms have changed in response. These new platforms and adaptations will continue in the future as people change how they spend their time online.

Popular short form video is one example of how the way we engage with information on social media is changing. Short form video content is typically under a minute or less, with the aim of quickly grabbing a viewer's attention. Such short form videos are great for sharing creative and informative ideas and allow the everyday person to represent themselves to their broader communities. These platforms, and this style of media content, are also very popular among young people.

Often people who work regularly in this type of short form video making are called 'content creators', although participation on social media is varied from casual use amongst family and friends, to professional content creation by paid or endorsed creators.

Consequently, due to the diversity and the motivations of these creators on social media, it is important to be critically aware of the content that they produce and share. This is where media and information literacy are important, and where the role of information professionals is valuable not only for fostering critical skills, but in creating content.

As noted in the IFLA Trend report, "Media and Information Literacy consists of the knowledge, the attitudes, and the sum of the skills needed to know when and what information is needed; where and how to obtain that information; how to evaluate it critically and organise it once it is found; and how to use it in an ethical way". (IFLA, 2011; IFLA, 2024, p. 32). It is also vital to consider the Currency, Relevance, Authority, Accuracy, and Purpose (CRAAP) of these information and media texts (see also the SIFT Method – Stop, Investigate, Find, Trace) and use the P.R.O.V.E.N. Source Evaluation method (Purpose, Relevance, Objectivity, Verifiability, Expertise and Newness) (Bicknell-Holmes et al., 2024), in addition to evaluating the target audience, and considering the motivation and background of the content creators.

Particularly as we also enter the era of accessible artificial intelligence technologies (TREND 2) that are interwoven with these accessible social media platforms for creating and sharing information.

SCENARIO 5

SHORT FORM

Short form video has potential for positive changes in the information environment from an information professional and the GLAM (galleries, libraries, archives and museums) sector's perspective. As such, social media may also provide an affordable and accessible platform for further library and collections promotion, in addition to educating the broader community in how to use library resources, materials, referencing and citation tools and to provide community workshops. With the skills to use social media in an informed and ethical way, it can also be useful for creating further educational content for schools, universities and other educational institutions. It is also a fantastic way to engage younger visitors to local libraries in addition to other GLAM institutions.

This scenario explores both TREND 1 'Knowledge practices are changing' and TREND 4, 'skills and abilities are becoming more complex', and the role social media plays in not only how we create and share information and how we critique these media texts, but also the great potential is has for engaging young people in library and GLAM contexts.

SCENARIO

Shasta was known online as ShoFo, her bios describing her playfully as a "4'10 human jellybean, uni student, name-and-shamer, with too many hobbies and too much free time." She had been making short form content for a surprisingly long while, considering her age. She started with BookTok, reviewing books online that many believed she was too young to have actually read. She gained a small following with just a few thousand views for each good-humoured post. Her online presence remained small when her interests expanded into makeup tutorials. It was around the age of 19 that Shasta really found her niche, more from making the kinds of short form videos she wanted to watch herself but couldn't find online, rather than making a concerted effort for fame.

Despite being the greatest repository of information yet devised, the fact was bad web design and unclear instructions abounded on the internet. This was particularly the case for the types of relatively small websites that nevertheless mandated engagement from unwilling or fee-paying users.

Mind boggling university interfaces, hostile webpages from the government, and inaccurate or out of date product and service instructions were fertile grounds for frustration and confusion.

Experiencing these failures of communication herself, Shasta found annoyance turned easily into humour, and that she could use her video editing experience to turn something like a bad user interface for a licence application into a cleanly cut, funny, and actually rather informative explainer video, usually less than a minute long.

SCENARIO 5

SHORT FORM

Some watched those new videos because they lived in the same area, were a similar age, and had similar admin problems, including at the local university. Many watched just for a laugh. Within a few months and with her fair share of filming and editing, Shasta stumbled upon an audience.

She was embracing the unexpected success, taking requests to review other UI fails or giving brief how-tos for course enrolments and even what-not-to-dos for resumes, with helpful suggestions and advice from her viewers.

Her follower numbers stabilised around 450,000 by the end of the year. This didn't make her queen of the internet from any stretch of the imagination. By this time such numbers only made you a minor influencer in the global scheme of the internet. But when you're from a relatively small country like Shasta was, and when you're only 19, it did amount to some degree of glamour and expressed a noteworthy share of success.

A further pivotal moment came the following year when ShoFo posted a few videos while visiting a friend in the neighbouring city of Ashcliff. She took the opportunity to collaborate with Ashcliff North University's student union, talking through what entitlements students who were pregnant, use a second language, have a disability, or a neurodivergent have and how to access them. Second, in a rare long form video spanning 11 minutes ShoFo sat down with a research librarian to be taught how to use citation management software for her assignments back home.

The videos were sharply edited and unintuitively entertaining. "Didn't think I'd watch a video about Endnote today, let alone laugh at it. What's happening to me?!?" one commenter said.

"Always thought I was just stupid not understanding this biblio shiz. Turns out I was lazy. Dammit ShoFo. Now I gotta up my game," said another.

Quite unexpectedly, her success in making funny, watchable, and accurate content had her embraced by the higher-ups in local schools and universities. Shasta was amazed. Her ShoFo persona had made enough of an impression that staff in places like Ashcliff North, as well as her own university, started playing her videos in classes. Ashcliff even added her librarian video to their website and used her image in some online promotions, superimposed on their logo like some kind of cereal mascot.

SCENARIO 5

SHORT FORM

Shasta's friend was a law student and suggested she look into legal action. But rather than being mad, she was wonderstruck her video-making side project was helpful enough that institutions would actively promote it.

She contacted Ashcliff, turning down an influencer 'brand campaign' they suggested, where she would tour and promote their campus facilities. But they did agree to support her making three new videos about enrolment FAQs, navigating unit content online, and about how casual staff can claim back business expenses, all the while playfully teasing Ashcliff for some of the idiosyncrasies in its systems. These complemented similar videos she had already made for her own university.

Shasta had no clue that being a local content creator could make someone so attractive to schools and universities.

But the ongoing requests for her to become a mascot made her more attentive to just how significant this model had become for different services and facilities. This was sometimes to encourage more enrolment. Other times it promoted particular causes, or even helped campaigns for grants and more funding. Shasta's ShoFo persona was of a young, smart, self-deprecating up-and-comer who focused on small, practical skills and presented tutorials in funny, relatable ways. It was something not only beneficial to a kid wanting clear information about how to do something that the bureaucracy of old form websites struggled to explain. It was equally helpful for these same older institutions who knew their own shortcomings and wanted to expand into the world of short form information.

It was exciting to Shasta. But seeing her videos being used in universities and schools gave her what she called "an existential startle." By this time her 20th birthday had come, and she wondered aloud in a video if she would soon be "an old, washed-up sellout," she said only half-jokingly. The teenage influencer dream had treated Shasta well. But in this next phase of her career she needed to be mindful to not lose her touch, or her audience, by becoming mandatory school viewing instead of just another low-key relatable girl.

This was part of the fascinating challenge of what places like Instagram or TikTok could do that a school library couldn't, and on the flip side what a school library can manage that's outside the scope of viral videos. Without realising it at first, ShoFo and other creators had entered a movement connecting these different worlds. Social media wanted to be more like a library, while libraries and schools in some ways were becoming more like social media.

SCENARIO 5

SHORT FORM

Shasta was contacted one day by several other content creators that Ashcliff worked with. Two were graduates of the university and two more were trending internationals with global followings. They explained that they were in talks with Ashcliff to set out policy for repositories of their content in the university app and in its libraries. She joined the talks, expanding them into questions about whether staff and students themselves could do coursework in short form content, and making a note to ask whether libraries would lend handheld devices to optimise using this new format.

The fact was that endorphin-rich video reels and daunting school hallways were very different things. Big, square, faceless classrooms were first designed for educating big, square, faceless workers. The realm of ShoFo by contrast was a portable, fast-paced place where you did things yourself and then laughed about them together. But perhaps the distinction wasn't so big anymore and was even growing smaller. Her own university had already made its own social media app for adding friends and organising classes. One of the social accounts she posted content was there. Everything was unsettled and up in the air. But it didn't seem so unbelievable that libraries might do the same. Not to Shasta, at least.

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SCENARIO 6

DIGITAL NATIONS

INTRODUCTION

The metaverse offers exciting possibilities for inclusivity in digital spaces and can facilitate connections across borders and provide immersive educational experiences. Likewise, it can enable individuals with disabilities to access services and opportunities.

For instance, the metaverse could expand learning options and offer students greater accessibility than traditional physical environments. Within these 3D simulations, students can engage in historical events, visualise complex concepts, explore planets, and much more. As we look further into these possibilities of the metaverse, we note the concept of a digital twin. A digital twin is a virtual representation that tracks the entire lifecycle of a physical object or system. It's continuously updated with live data and leverages simulation, machine learning, and reasoning to support informed decision-making.

Despite these exciting innovations, there is still the risk of perpetuating the existing challenges of a digital society. We need to be mindful that issues such as accessibility, affordability, and security, common in mainstream technologies, may also be present in the metaverse.

As such, there are implications for digital inclusion that can impact those in countries with connectivity and socio-economic division, relating to TREND 5. From this, we can see many complexities with digital technologies and how they facilitate, or not, inclusion in information systems.

Digital and social inclusion are pressing issues in the near future, with implications for wellbeing and health. As people actively seek opportunities to connect with others in their local communities, libraries are a valuable place to create and facilitate community engagement. This is where we also explore TREND 7 and examine how communities are leveraging digital and place-based initiatives to create shared knowledge, connect people across generations, and strengthen social bonds.

SCENARIO

They were no longer islands, but more like waves, swept so much by water that they were as formless as the ocean itself. Land was visible one moment and gone the next. Most trees had been washed away, and ever more plant life now took the form of green algae that followed the rising shores. Buildings still stood, but most were abandoned.

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Some older residents remained, but little peace was promised to them. Indeed, even the old graveyards had long since been washed away. Most other buildings had become waterlogged, homes now only for crabs and barnacles. Though some of the land was still above water, for many island nations displaced by climate change this was a time not only of great displacement but of adopting old culture in new mediums.

It's a story mirrored across low islands and coastal shores around many parts of the world. Several expanding deserts have done a similar job too. Climate refugees are what the older generation in this future would call a 'new normal.' But in this story we focus on Tuvalu, the nation who first made sovereign reinvention possible. It was as early as 2023 that the Tuvaluan Government had put forward a plan to preserve their islands, later replicated by other communities, nations, and one or two cities. It was called a digital twin – an existing idea used in a new way.

The twin was made from snapshots in time from before the sweeping out of the trees and the people, made from what at the time were the latest recording technologies. The geography, infrastructure, and natural cycles of Tuvalu as it had been in the 2020s was compiled in unprecedented detail, to the point of simulating walking or swimming anywhere around its nine islands. It was a picture of what the nation had looked like, and a cultural memory of an identity otherwise eroded, imperfect only in that the ocean had already risen by this point, but sufficient as a recording of a time before it had been too late.

Like a government in exile, both Tuvalu's administration and the twin could continue outside the physical boundedness of what they represented, active within a unique metaverse despite Tuvalu's population now existing in several large diasporas around the edges of the Pacific and Oceania. The digital twin itself had been affectionately named 'Twovalu' by English-language journalists when its beta was launched. While the Tuvalu Government rejected the name, it stuck among many host communities.

As a digital place, Twovalu could only be accessed through something like a laptop, a phone, or a VR headset. The Tuvaluan Government, though sitting in another country, had nevertheless made arrangements for each of its citizens to be equipped with a suitable device to see it. But without control over the lands and buildings the diasporas now found themselves, Tuvaluan representatives needed to be in contact with other governments and organisations to find public spaces to connect online.

In this future, Teniku was the first of her family to move to New Zealand. She had been issued with a VR headset to see her family's old home on the islet of Fongafale, but her living arrangements made using it difficult. When asked by an official about her experiences, Teniku explained: "It's not just the internet. But there are troubles with that too, in this sharehouse. I don't feel safe enough here. Not enough to put this over my face.

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What if someone comes in?" Some towns and cities began setting up 'digital embassies' – shared spaces with computers and silent rooms for people estranged from their homeland to connect to its digital twin. However these were slow to be established, and either by formal arrangement or by convenience, library spaces also became regularly used for these purposes. Many new cultural festivals began to be celebrated by libraries in towns and cities with large diasporas of these digital twin citizens. Such climate refugees congregate on these occasions, with stretched smiles and stretched bandwidth alike. These migrants with access to a digital twin now often see libraries as places to learn and practice their own cultural knowledge, including for those with no memory of being at their original homes.

While most of the provisions for a fully functioning nation are present in the digital twin of Tuvalu and others like it, their citizens couldn't always be there. Entrance was largely traditional and performative. While a small number of islanders would have liked to spend much of their time online, Tuvalu tried to adhere to medical advice that users take regular breaks and don't spend more than 6 hours on the digital twin. It was hard to coordinate Tuvalu in general, as a decision was made to have the twin operate on the island's original time zone.

People in situations like Teniku, who also migrated the farthest away, either hoped to use library facilities after hours or otherwise could only see their cultural home at its nighttime. Were it not for the new tradition of coming to shared spaces with good internet connectivity on holidays, it would likewise be hard to see Twovalu and other disrupted places populated enough on any given day to simulate what living there was really like.

Many members of shared communities without a climate migration background didn't understand what a digital twin was, and saw the influx of what they believed were video game-obsessed migrants as a peculiarity. Libraries and digital embassies sometimes witnessed hostility towards these migrants, or on rare occasions were targeted themselves because of their association with them. Naturally there was great collective value placed in digital twins and real trepidation when it seemed as though they could be harmed.

These fears came to a head when a series of typhoons and hurricanes in the Pacific and the Atlantic overlapped. Both damaged a number of data storage facilities. Parts of the digital twin lagged and temporarily went down as large amounts of data stored in particular facilities was transferred or restarted elsewhere.

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On this occasion the problem wasn't as serious as it appeared as most disruptions were from other damaged infrastructure or simply through environmental interference. But at the time this was mistaken for the digital twin being destroyed by the storms – a cruel compounding attack on refugees first forced from their homes and now destroying their digital simulacrum.

During these extreme weather events, both in the effected locations and around the world, digital twin citizens gathered around shared spaces like libraries, urgently wanting to see if Twovalu was okay and being furious if the facility was closed.

When the storms subsided calm returned. But extreme weather wouldn't be entirely eliminated as a threat. Not if digital twins and other information wasn't well backed up, and the specific policies and redundancies of its cloud storage conducted in well-considered ways.

The cruel irony was that while a very small country like Tuvalu becoming a full digital nation didn't contribute much CO2, larger and wealthier nations following suit for different reasons did. Twovalu wasn't even supposed to be a solution.

What was meant to demonstrate the need for climate action became a new reality where whole nations existed in the hands of data providers and host facilities. These were cultures now balanced between private net use, public net use, and physical gatherings to express and teach identity in these same places. A place to keep alive worlds otherwise lost, like the volumes of old tomes in voices since past. This island nation now among them.

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SCENARIO 7

GREENFORMATION

INTRODUCTION

Libraries and other GLAM sector institutions are increasingly adopting sustainable and eco-friendly practices to minimise their environmental impact. By implementing a variety of environmental practices, libraries can conserve resources, promote sustainability, and reduce their carbon footprint (IFLA a, b, n.d.). Sustainable library practices encompass a wide range of initiatives, including waste reduction, energy efficiency and the promotion of digital resources. By embracing eco-friendly technologies and sustainable building design, libraries can create more environmentally friendly spaces. Furthermore, by encouraging sustainable activities among patrons and their wider communities, such as recycling and responsible resource use, libraries can nurture a culture of environmental awareness (TREND 1).

The 2024 IFLA Trend Report highlights the increasing importance of sustainable practices within the library sector (TREND 6). As libraries contend with the challenges of climate change and a scarcity of resources, they are being encouraged to adopt eco-friendly initiatives that minimise their environmental impact. By integrating sustainability into their daily functions and operations, libraries can contribute to a more sustainable future while also enhancing their relevance and impact within their communities. We can also think about our role in sustaining a 'green economy', that is a way of doing things that is good for the environment and people, and focuses on using less energy and resources and reducing pollution. A green economy also creates jobs and economic growth by investing in things like clean energy, sustainable transportation, and protecting nature. Additionally, there is the approach of a 'circular economy', where we can reuse resources, and further reduce our environmental impact while also increasing access and equity.

As librarians and information professionals, we need to invest in teaching people about digital technologies from basic computer use and everyday online activities through to business and creative tasks that can help the environment by reducing the need for paper and travel. It also means improving government services online, so people can access them from anywhere and at any time and may also help people in remote areas to do things like manage their land and protect the environment better. Lastly, it means repairing broken electronics instead of throwing them away, and advocating for the right to repair, which helps reduce electronic waste. This is where we need to consider building strong community connections and partnerships (TREND 7) that contribute towards a more equitable and supportive environment.

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A lot of work is put into curating the environment of libraries. You know how it is. They should be harmonious communities that both offer shelter and foster interaction between different groups and different knowledges, that play to the strengths of their curators while becoming more than the sum of their parts, that see community and understanding as a cycle and foster that cycle into each next generation. In other words, libraries are like ecosystems, made both by and for the communities they are a part of.

But the relationships between libraries and ecosystems goes further. Just as library users are affected by the environments of their libraries, the world's environment is also affected by the global systems that libraries are a part of. More interest in our relationship with the Earth's natural environment was one of the great developments of the last few decades, so collective redress to the climate's needs has become part of the decades that have followed. As laboratories for our best pedagogical practices, libraries have taken onboard this shift from passive awareness to active participation within nature, once again positioning themselves at the nexus of societal change, reflecting a societal shift from environmental extraction to environmental value adding and degrowth.

The Knowledge Circle program was set up by Once Riverbank Library as part of these changes. Once Riverbank took its mission to educate about environmental systems seriously, and had been looking for opportunities to turn its own restructuring into acts of public education. The Knowledge Circle program had volunteers among staff and the public to discuss and learn about the library's changes. This group was formed to help share the learning process with the local community and to document the library's actions to better represent the ideal of the circular economy, and circulate this knowledge back to the public as well.

The Knowledge Circle decided to focus its active learning efforts on data energy use and electronic waste, 'e-waste' being electronics that were no longer needed or had been discarded. It included a huge variety of products from the mundane and forgettable to the specialised and conversation starting. Indeed, as items had kept gaining new electrical components, e-waste has continued to grow. Unfortunately, it is only very recently that the same gusto has been put into new recycling techniques or practising existing strategies at scale.

Some households have what's called a 'drawer of doom,' filled with out of date phones, obsolete cameras, and unused cables, as well as sentimental things like old game consoles and music players. For volunteers from the general public, it was a shock how the library was no different. In spite of its existing recycling policies, the library's 'storeroom of doom' was a reflection of how short and fragile the library's systems had been for a time, passed largely from short-lived machine to short-lived machine.

All these tools for the library to function were now pooled up out of sight, and were largely incompatible with current software.

"The more we look the more we see," wrote the volunteers in the summary of one of their bi-weekly Knowledge Circle meetings. "This is after Once Riverbank already shifted a lot of its services onto visitors' and students' devices. If they hadn't already taken that step in the last decade, there'd be even more waste here."

Volunteers from the Knowledge Circle program looked into their waste disposal system and tracked down where the rest of their e-waste had been processed. To their surprise, their disposal company had been shipping the waste hundreds of kilometres to an overburdened facility, which was overburdened and stockpiling because of the amount of waste from the organisations it serviced. It turned out that even now with better technology and talk of a circular economy, the secret to managing waste still wasn't PR campaigns or improved recycling techniques, as useful as these were, but stopping overproduction at its source. Chemical irritants from old LCD screens, lead and other heavy metals from computer cases and hardware, not to mention microplastics from just about every common electronics device on or off the market, if you can name it, the disposal facility had it. Sure there was only a small amount from any one item.

But picture a whole dumpster. Indeed, picture a junkyard the size of a football field, with all the soil within and around it no longer safe to grow produce, graze animals, or for children to play in. The waste of the digital age was not decoupled from the physical world.

"Oh buddy, we got everything," said one recycling worker the volunteers interviewed. "Heck, I've been working with electronics for twenty years and I still see things that surprise me. But if we're looking at just an average crate, we get loose circuit boards, keyboards, mice, extension cords, monitors, laptops, phones, tablets, servers, even security cameras and security gates."

He shook his head. "And not even all this stuff's broken. A lot of the time it's just passed some warranty period. Stuff that doesn't look new, but works just fine. Unless someone take it home before it's thrown away, it makes its way here."
The e-waste situation was untenable. It was clear each object's whole life cycle needed to be incorporated into Once Riverbank's own ecosystem. But it was easier said than done.

The same could be said about data storage and its lifecycle. Most importantly, learning when old data could be forgotten to make room for the new. Just as every watt of electricity affected the planet, so too did every byte of storage. Even if the energy was renewable, as it now often was, one less data storage centre could mean one less dam severing a river, or one less valley dug up for precious metal to make solar panels.

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The Once Riverbank Library was one small part in a momentous shift in societal planning, changing data from something unageing and universal to something situated and perishable, whose value didn't come from being eternal but, like us, existed at a certain moment and for a limited time.

Conversations about electronic efficacy have for a long time been dominated by a focus on internet literacy and critical thinking, and how to learn and gain from the truly astounding archives of information online in a way that is still locally relevant and aware of source's viewpoints and biases. But as important as this focus has been, until this new decade the focus on this limited version of critical thinking has drowned out discussion on data usage and the overreliance on growth for improving information outcomes. The almost exponential growth of computing power, including new inventions like quantum computing and the commonplace use of data-churning AI models have in part come from this silence. Knowledge Circle was itself a part of this changing model of data, both seeking to host its progress online for a time, but trusting its outcomes to the active learning of Once Riverbank staff and the public. To learn for the sake of life rather than storage, and rebalancing the knowledge cycle with the nature cycle in the process.

Many data storage providers and even some in the library field argued that because their facilities paid to use a higher percentage of renewable energy, that they weren't part of the problem. Knowledge Circle had looked at this solution too but saw it was half-baked. That was renewable energy that could be used for more essential services that required more expansion of electricity generation, renewable or otherwise, where once less sufficed. All this just to continue the cycle of growing data usage. To the volunteers, it was like building more lanes to solve a traffic problem instead of building a better public transport network, relying less on cars, and changing our need for long commutes. In other words, it was inefficient.

Knowledge Circle was an ambitious program. It was deeply situated in a changing perception of data storage and a reconceptualising of growth. The program wouldn't have been possible otherwise. Nevertheless, incorporating the full lifecycle of all electronics used by the Once Riverbank and reducing their use, changing their systems to accommodate non-permanent data storage in the global knowledge economy, and shifting to an active rather than passive model of learning, were not easy. Just how successful Knowledge Circle would be for Once Riverbank and the local community was still unclear. It rested on their preparation. But they would try, and with it libraries would change.

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SCENARIO 8

OPT-OUT

INTRODUCTION

We want to easily connect with others and access information (think about smart devices and the internet). However, this requires sharing much of our personal data with private companies and other large institutions. The more data we share, the better access we get, but this also raises privacy concerns.

The convenience of accessing our digital data comes at a cost: increased surveillance. Many of the digital devices that we use daily, such as smartphones and the smart appliances in our homes, rely on geolocation technology. This allows our location to be tracked, often without our knowledge, through internet-connected devices. In some instances, this has been referred to as "Surveillance Capitalism" (Zuboff, 2019), particularly in regard to the role of big business and their reasons for such personal data acquisition (e.g. to improve their digital services, to have an accessible customer database, and so forth). People who understand technology or those who are considered more 'tech savvy', can often protect their privacy by adjusting settings on their devices, or by using a 'password manager'. But for many others, it is a challenge to balance convenience with privacy. We need to consider improved privacy, our need for customer data and our own privacy rights and obligations.

We also need to consider how such personal data is used by big business and tech companies and for what ends (TREND 3).

Within this broader technological picture, libraries can play an important role in addressing digital device use, 'login fatigue', and digital and data privacy concerns. Protecting personal information requires specific skills. For people who regularly use government services, this often necessitates sharing personal data and they cannot avoid these (often digital) systems. Therefore, librarians and other information professionals can offer community workshops, training sessions and produce library guides on managing digital device access and use. Additionally, libraries can provide guidance on creating strong, distinctive passwords and can teach those in their local communities to use tools such as password managers to reduce such 'login fatigue'. Furthermore, librarians can educate the public about digital and data privacy best practices, including understanding privacy settings, avoiding phishing and other online scams, and to protect personal information online. This is intertwined with building community connections in their wider communities (TREND 7).

As you read through this scenario, which explores TREND 3 and TREND 7, you may want to think about how libraries and information professionals can help build trust in public institutions, and define their role in facilitating technology and digital skills in their wider communities.

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The constant messages, the too many passwords, the face scans, the records of his every purchase, and the countless subscriptions. It was too much for Juan. All this just to watch a half decent show on his media centre with his young daughter. The challenge of being a single parent wasn't being stuck on care duty. To Juan, it was all extra hours he needed to work away from Dila, and how few hours it left for time together.

Trying to manage all his digital accounts was another distraction for tired Juan. He had a humble background and found things better when they were simple. He didn't like being online in general, and he had been called antisocial because of it. But nothing could be further from the truth. He just didn't write in a message what could be said better in-person. Caring for a nine-year-old by himself did add to his disconnection. Not because he couldn't see other people. Rather, more than ever he was cautious of the content on social media, the slow erosion of privacy, and the time wasting of doomscrolling. He just wanted to raise Dila to be well-adjusted, to spend time with friends in-person and not only online, to spend time with her father, and to be free of personalised ads and the collecting of her data. At least until she knows what data privacy is, and what means for her.

"It's not right," Juan said to his colleagues one day. "How's a kid supposed to tell left from right with all they've got online? I mean sure, soon Dila will be able to work it all better than me. But is it so much to ask for somewhere safe and quiet at home?" His colleagues asked him if he was going 'off-grid,' and Juan laughed, thinking they meant growing his own vegetables and raising chickens, with water tanks and solar panels.

"No, no. Not that," they said. "Off-grid with your information. One of the people who won't go on a website if it takes cookies or needs an email. You know, someone who doesn't want a big footprint." He hadn't heard the term before, but he supposed he was.

Being off-grid wasn't a lifestyle for extremists. It wasn't even a political movement. It was just a position some people discovered they had when the expectations of digital citizenship had moved faster than they had. Juan was one example of what it could look like. It included VPN users, people who didn't want their searches or purchases on record, women wanting their location history private, there were even many occupations where a small digital footprint was helpful. Surprisingly many educated professionals flirted with making a return to more analogue technology. They replaced their smart watches and used fewer accounts, worrying about scandals, geo-tracking, and data-mining. It was joked that anyone who wanted to hold an elected office already had something online that disqualified them.

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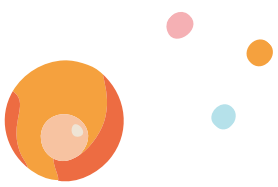
Even so, that didn't make daily life simpler for Juan and Dila. Shops and services assumed you were laden with smart devices, like a miniature cell tower of pinging apps and connectivity.

It didn't make role modelling an 'in the moment' lifestyle easy. More than once Dila had watched as her father tried talking to staff in restaurants or government departments, and be stared at incredulously or scoffed at.

"Use the QR code and go through our website" they said, as if he was stupid. Dila was already pressing him for her first phone, and these kinds of interactions weren't making holding off any easier. All this online content must have been useful for some people. Juan didn't doubt that. But put simply, he didn't want it for himself or his daughter. Not until she was old enough to make an informed decision about it for herself. Once your information was online, it was hard to get it back. This is how Juan heard about footprint scanning, also called the 'opt-out' industry. These were subscription services that offered to scour the internet for easily available public information about a user and automatically send requests for it to be taken down. The services could also flag non-essential accounts you had created but hadn't been using, so you could delete them. Ironically to protect from scammers, Juan's government had recently chosen to regulate the industry. Classes and information about these services were now being offered in some public settings.

This was how Juan was directed to his local library. A number of institutions had been tasked with teaching members of the public how to 'opt-in' to these services. This was exciting news for Juan. But more than that, he soon learned that the opt-out community had been increasingly gravitating towards libraries in general. To this diverse and private collection of characters, they were one of the last neutral platforms, especially for those without the expertise to manage all security and privacy tools available to them at home. Libraries also offered a chance to find like minded communities with similar concerns and shared interests.

Juan had missed out on a lot of local events, and so had Dila. Aside from Dila's school, Juan's job, and the rare road sign or poster in a shop window, they were out of the local loop. There was only one local gazette these days, with the rest of the local newspapers needing an online subscription. Children's dance classes, music performances, markets, and even visits from celebrities went unnoticed. Juan needed this service to break that trend, to help his guilt with what he had so far failed to offer his daughter.



All this with no micro transactions, no subscriptions, no ads, and no record of every book opened or question googled. They say when a service is free then you are the product. But here was the last exception to the rule.

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Juan wasn't sure why, but he had pictured a public library as the place bored kids waited around when it was raining and they needed to be picked up. But if he wanted freedom from the data behemoth then a physical, open repository of knowledge is exactly what he would ask for help. Dila was reluctant to come along at first, resenting the afternoon trips that started replacing going straight home to their media centre and comfy couch. But her tolerance was earned when a local writer did a reading of her new book Panini and the Pepper Dog. Her respect was given when Juan signed the two of them up for a group bike riding tour from a brochure in the lobby. She beamed with joy when she entered a small theatre production. Dila convinced a friend from school to join and made a new one from the play. Together they were three forest fairies, with wonderful green costumes and bantering lines of dialogue.

Juan watched the little production with pride, and sat alongside the father of Dila's new wand-wielding pal. His cashmere suit made Juan guess that they had lived quite different lives. Yet here they were together. A few rows of shelves behind them, a few figures on either side, each with their favourite person on the stage before them, and for this moment at least, absolutely everything in common.

So Juan was finding community. He knew he couldn't keep Dila here forever. It was just one way of growing into an online world in a healthy way, and maybe not a way that everyone would agree with. But everyday she learned something about herself before the algorithm could, and got that one leg up about how to be herself, online and elsewhere.

Dila would ask for a phone again soon. Who knows, maybe one day the library would ask for you to scan a code to enter, or make an online account to register for any activities. But for now Juan was happy, and more importantly, on the small carpeted stage of the colourful multi-function room, Dila was too.

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OPT-OUT

ADDITIONAL RESOURCES

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Australian Community Attitudes to Privacy Survey 2023. Australian Government. Office of the Australian Information Commissioner. (Australia) *Explainer Video	https://www.oaic.gov.au/engage-with-us/research-and-training-resources/videos/australian-community-attitudes-to-privacy-survey-2023-explainer-animation
Blackmore, H., Logan, S. Chan, J., & Bennett Moses (2023) Public Attitudes Towards Government Surveillance of Social Media in Australia. Surveillance & Society, 21(3). (Open Access) (Australia)	https://doi.org/10.24908/ss.v21i3.14894
Brierly, P., & Susman-Pena, T. (2023 July 31). Four ways to help U.S. public libraries to build trust and bring people together. IREX. (United States)	https://www.irex.org/insight/four-ways-help-us-public-libraries-build-trust-and-bring-people-together
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SCENARIO 9

LIVING MEMORY

INTRODUCTION

The constantly evolving nature of digital technologies has changed the way we live and communicate.

While these advancements have brought many benefits, they have also contributed to creating a digital divide, particularly among older adults. As the global population ages, it is becoming increasingly important to address these challenges of digital exclusion to ensure that older adults can fully participate in the digital age. As we note in TREND 5, digital technologies are unevenly distributed, and this includes skills, access and training that can impact various demographics, including senior populations. It is noted in the United Kingdom, for example, that even though more older individuals are becoming digitally active, a significant number of people aged 55 and over are still offline.

Age is the biggest factor in determining who is digitally excluded, although other factors such as income and education also play a part (Centre for Better Ageing, n.d.). This is also recognised globally, and is a significant issue along with the social isolation of older people who need community connections to maintain health and wellbeing (World Economic Forum, 2024).

Older people are the most frequent users of libraries (State Library of New South Wales, n.d.) and libraries have been playing a valuable role in the social and digital inclusion of older adults. By providing access to technology, skills, and expertise, including digital literacy training and support, librarians and information professionals can encourage older adults to confidently navigate the digital world. In this scenario, we explore the challenges faced by older adults in the digital age, the importance of digital inclusion, and the specific role that libraries play in promoting digital literacy, community connection and support (TREND 7) among this demographic.

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The walls were a flaky cream colour, with fake wooden panelling and cast with oppressive-looking shadows from an artificial white light. The thin carpet seemed to fold at its edges, fitting awkwardly into the confined and perhaps even shrinking space. The young man, a reservist barely 19-years-old, dared not look through the window of the door, which appeared to join some kind of hallway. He feared any attention from his captors. How had Johan gotten here? Had he been captured? He sank into the cell's corner, holding his head. All he felt was confusion and anxiety. His memory went to his friends and the story of what happened to them, similarly detained in this terrible civil conflict. But it didn't make any sense

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How did he know what happened to those other poor souls if the peace deal hadn't been signed yet? What was he doing here, and had he been forgotten? His body was shaking. Panic. Johan gave out a long and echoing cry that rang through the small building. One that made the faces of the studying students in the neighbouring rooms turn from their screens, eyebrows raised in alarm. A staff member ran from the help desk, brochures and pocket-sized QR codes scattering on the floor. She was more used to questions about wifi and where the bathrooms were, but she would try to answer this wailing call as well. Peering through the quiet study room window, she saw a wide-eyed man with greying hair, low in the corner. He was by far her senior. She was only armed with a staff card, a mobile phone, and a chiffon scarf, but by the way he looked at her with a winced expression and stretched, shielding arms, you would think she was pointing a gun at him.

While he didn't recognise her at that moment, the attendant saw who he was. He had been a regular in the last few months, and might have even come to the library every now and then before that. A nice man with a can-do attitude, as she recalled, and one who had been needing a lot of assistance from her and her co-workers. Nevertheless, on this occasion there were processes to follow. One that made sure both she and him were safe. Her first responder training emphasised de-escalation, calmness, and getting support.

The day had started so well for poor Johan. Before his total embarrassment, the 70-year-old had remembered to come to the library so he could get help completing the new national data storage audit. It was a major win for Johan ever since his memory had been starting to fail him. The last thing he needed was trouble with the tax office when the new data laws passed, with savings as precarious as his. Fixing farm machinery had paid his bills after his early stint in the armed forces, but hadn't left much for retirement. He lived on his pension now. Reflecting on the outburst now that it was all over, Johan supposed it was inevitable that an innocent public servant would be the one to suffer from his early onset cognitive decline, as his doctor called it. Afterall, without much family they were the people he spent most of his time with. He had needed to rely on these public avenues for support much more recently.

Johan had apologised profusely to the library staff and volunteers when he recovered from his moment of confusion, and then again when the paramedics arrived. Forgetting where you are in your life is bad enough, let alone when it brings you back into trauma, sharing it and disturbing others in a way that you would otherwise never allow. Johan hated feeling like a burden.

It was that terror we all know but none of us want to think about. Unlike the cheap thrills of fiction, cognitive decline is something we will all experience ourselves, either through our loved ones as they age or within our own bodies, looking at ourselves disdainfully as we fear becoming deadweight for others.

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LIVING MEMORY

Johan's thoughts had been drifting into this darkness over the recent months since his diagnosis, especially as he had no partner or children to share his thoughts with. He had looked after his parents during their old age. But now, prematurely in Johan's case, he found the experience of growing old had changed somewhat in recent years. There was a greater reliance on services in place of family, and these services often functioned in new ways that he needed help locating and understanding. In other words, he had options for keeping a good quality of life, but because of his failing memory and their relative newness to him, he needed to rely a lot on staff, volunteers, and AI systems to access this potential. Speaking later with the staff member who had found him, Johan reflected: "When you've served your country how I have, you know what you're capable of with good discipline. Or what you used to be capable of. You get so used to it, you even get annoyed when other people don't live up to your ideals about self-management. So going through my changes, I've gotten pretty angry with myself sometimes. I'm still learning how to ask for help, and still unsure how to fit my old way of doing things into this kind of service space. But I'd like to learn. I can still do that."

Johan had already been introduced to legacy systems, where new user interfaces as well as data and object storage locations were reverted or translated back to how they had been before each update – a useful feature on the library's computers to help Johan stay on top of his digital life. But as useful as that was, it didn't mean much for those at a more advanced stage of decline, who didn't always have the awareness to know they needed to revert to these previous versions, or were old enough that when their memory failed they reverted back to manual systems that didn't exist any more. In an age of digital change, and as the last generations not raised with such technologies began reaching old age, Johan wasn't alone in his struggle – even if his manifested earlier than he felt it should.

On long reflection, Johan decided to start a support network through the library, developed for others also trying to manage life in a world of changing information systems while managing cognitive disability and loss of memory – especially for those who were socially isolated. Afterall, he had the motivation and now his own experiences. With support managing the registering, organising, and the calendar, Johan found it both a privilege and a purpose to openly discuss how to live a fulfilling life with such an otherwise unspoken disease. Indeed, those living with a range of disabilities were encouraged to attend.

As Johan attested, the library staff made the whole thing possible. Difficult as it was, for this kind of community-led group to first be established and then to run for more than a few months, it needed a large amount of support from a patient, trained set of individuals who could answer the very absences the organisation was speaking to.

"They were so understanding," Johan said in the first meeting of Living Memory, "I could've died of shame when I had my little incident here. But no one made me feel embarrassed. For that I'll be grateful forever. It gives me confidence for the next time something like that happens. Because I know I'm not alone. Because of them, I've gotten the chance to meet all you who've come today, in the room and online. So much to talk about and share!"

To Johan, his library wasn't so much a repository for books as it was a hub of services where knowledge and community come together, like a societal support network condensed in this case to a few small study rooms, a shared space, and bathrooms. It was something not oriented around profit, but managed for the future in terms of delivering hopes and plans of the vulnerable people of today, and preparing for the new and emerging vulnerable peoples of tomorrow. For as long as he could join in on this mission he would do so, and he would be proud of his purpose.

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Morris, L. (2024, November 1). Libraries to support NHS App expansion. National Health Executive. (United Kingdom) (Open Access)	https://www.nationalhealthexecutive.com/articles/libraries-support-nhs-app-expansion
Special Broadcasting Service (SBS). (2024, November 3). 'Education, connection and heart': Why libraries still matter in the age of the internet. SBS News. (Australia) (Open Access)	https://www.sbs.com.au/news/article/why-libraries-still-matter-in-the-age-of-the-internet/6md1el2aw
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World Economic Forum. (2024, September 10). How can we ensure digital inclusion for older adults?. WEF (Open Access)	https://www.weforum.org/stories/2021/10/how-can-we-ensure-digital-inclusion-for-older-adults/
American Library Association (ALA). (n.d). Libraries Respond: Services to Older Adults. American Library Association (United States) (Open Access)	https://www.ala.org/advocacy/diversity/librariesrespond/services-older-adults
Barrie, H., La Rose, T., Detlor, B., Julien, H., & Serenko, A. (2021). "Because I'm old": The role of ageism in older adults' experiences of digital literacy training in public libraries. Journal of Technology in human ServiceS, 39(4), 379-404.	https://doi.org/10.1080/15228835.2021.1962477

ADDITIONAL RESOURCES

RESOURCE NAME	URL
United Nations (2024, April, 24). "It's never too late to learn." How libraries help older people overcome fear and master computer technology. United Nations, Ukraine. (Europe) (Open Access)	https://www.undp.org/ukraine/stories/its-never-too-late-learn-how-libraries-help-older-people-overcome-fear-and-master-computer-technology
World Health Organisation (WHO). (2024). Making older persons visible in the sustainable development goals' monitoring framework and indicators. WHO. (Open Access).	https://www.who.int/publications/i/item/9789240090248

SCENARIO 10

DARK LIBRARIES

INTRODUCTION

The rise of big business in education through teaching and learning technologies (or "Edu-business" and "EdTech") and the related privatisation of public resources (TREND 3), presents both opportunities and challenges for the education sector, including libraries and information professionals. While these technologies may seemingly fill a gap, these developments also raise concerns regarding equity, accessibility, and funding provision, in addition to the tensions between public knowledge and the role of private enterprise. As such, this scenario explores a speculative future where libraries work in a 'shadow education' context.

'Shadow education' refers to the complementary educational activities that occur outside of formal schooling systems. This typically takes the form of private tutoring, online courses, or other self-directed learning programs. While intended to improve academic performance, shadow education has significant implications for educational equity and the overall structure of schooling. It can impact existing inequalities, as access to these supplementary services is often tied to socioeconomic factors.

As we further note in the 2024 Trend Report, Deloitte's prediction of a decline of "the theory of the firm" and a rise of "the theory of the ecosystem" reflects the growing trend towards collaborative solutions for such complex social problems. Organisations are increasingly recognising their interconnectedness within larger communities, moving away from isolated efforts and towards partnerships that produce mutually beneficial outcomes. Furthermore, advancements in connectivity and data technology are further breaking down traditional barriers and enabling more innovative and inclusive approaches. Given this broader context, libraries are well positioned to address significant social issues including digital exclusion, poverty, and educational inequalities. Libraries can act as information hubs, offering resources and services that empower individuals and communities (TREND 7).

SCENARIO

The aspirations of parents were crystallising like gems, reflecting old hopes in new shapes and colours that felt like a slick, if slippery bridge into a long-promised dream. The region was developing quickly. Indeed, quicker than it had in generations. Infrastructure programs mixed with promises of industrial projects, making the trickle of information and resources into the old valley region more like a torrential river, and the prospects of more complex careers, and particularly good paying government jobs, far more attainable for the next generation.

But that is not to say that when they came these jobs would be easy to grab. It was a fixation for parents and carers who themselves worked long hours for little reward, who saw this as a chance to push their children hard now for a better adulthood later, as they imagined change coming to their doorsteps.

However, despite huge efforts to upgrade pipes, cables, wires, roads, and power generation to attract investment in the valley, there were no such efforts to improve the education sector. That would somehow be picked up later, or was someone else's problem, a bureaucrat must have thought. This was particularly unfortunate because, as you can imagine, once most locals had overcome the shock of change it seemed only fair to them that they shared in the promise of social advancement in the next decades. These were lifestyles and jobs they wanted to prepare their children for, at any cost from their own admittedly meagre means. In other words, for locals there was a market for education, worldliness, and training for the next generation of workplace. It was a market parents felt pressured to enter their children into, despite or perhaps because of their little money and these program's absence in the overstretched school system.

But children couldn't be put into alternatives to school. Having no certificate of education would be terrible for their prospects. Similarly, private schools were too expensive for many. Rather, entrepreneurs began to set up 'complementary' learning spaces for children to attend before and after school hours, and often weekends, that provided uncertified training with the promise that it would be formally recognised later. Inspiration was taken from some extracurriculars in more established regions and cities. But above all else, with children sometimes as young as five being put into these establishments, the creators of these ventures wanted to emulate the soothing environments that parents and many children knew already. Ones that granted legitimacy and trust. Among the more simulated environments was the school library.

"I walked into one of these new places," a teacher said to her co-workers as these 'dark' libraries began to emerge in the shadow education sector. "Because of my own kids, I wanted to see what the fuss was about. This one's called 'Library-Pro.' It's got a whole floor on that new steel and glass building. The third floor. I swear my kids and I were part of the first wave of visitors to go in when it opened. Or 'customers' I suppose. But there were already decorations everywhere.

Posters for games and local events, desks in one room that actually looked more like a classroom. I even saw a line of little children's colouring-in drawings on the service counter. Pink crocodiles, blue palm trees, scribble-faced pirates. But what children drew them, I haven't a clue. The facility was barely open a day." Library-Pro was like a software company opening a job-ready childcare facility. Its 'library' spaces were really rented office space, largely used to host devices running its software.

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DARK LIBRARIES

Computers were limited to Library-Pro applications, access and care was only available to those with a Library-Pro subscription. Subscription was almost too easy. Parents could sign up in a moment and not think about the cost. It was tailored for people desperate to give their children access to future career-attaining lessons, parents who weren't familiar with the standard of free access to services in true libraries, and families who didn't have stable access to the internet at home or had limited data for things like homework. Library-Pro could of course also use this care work to ingrain the use of their products and games, encouraging them to be used at home where possible, and building brand loyalty. In other words, these dark library spaces could be a shop floor to advertise their subscription content.

The public noticed their potential as a place to mind their children while they themselves worked, though not everyone could afford to use them this way. Few people in the valley had access to the growing flexible work arrangements elsewhere, and those that did still acknowledged that it was nice not being on care duty while working. But while these organisations were generally safe places operated by well-meaning individuals, they weren't perfect. There were stories of incidents and talk of these organisations needing to become more regulated. Additionally, they had the effect of leaving children tired and disengaged from school, after already spending so many hours active and away from home.

However, these shadow education facilities were also seen as an opportunity to provide more personalised education and thus more choice for families. A small but important number had actually been built on genuine, cutting-edge pedagogy, and gave room for positive experimentation that larger institutions wouldn't consider. With the lack of funding for education, there was talk of the government opening accreditation to these shadow facilities and providing more oversight in the process. There was even talk of building pathways into higher education from a select number of these organisations for older children. All together this talk greatly pleased some people and horrified others, for how it legitimised these small-scale private entities in the education space.

These kinds of enterprises weren't new. The shadow education sector was a known entity. It's not even new for it to target anxious and competitive parents. But this once sleepy region was an example of an important emerging trend. The image of modernity and the competition it inspired was played out over the battlefield of childhoods, turning them into future traumas of expectation, unrest, and assimilation into idealised models of rote learning that, in many cases, were already out of favour elsewhere. School teachers, seeing the growing expectations on children, also felt the pressure of competition.

SCENARIO 10

DARK LIBRARIES

Whether the government legitimised these organisations was of huge consequence to schools. Teachers and librarians reached out to parents to talk about their concerns, sometimes starting whole public outreach campaigns on their own time. Other times teachers felt they had to push for updated teaching models, creating calmer environments to compensate for hectic expectations for many students outside of school. It was a difficult balance to find.

It was an awkward place for a school library to be in. Their image had been replicated and then altered into a place of complex lessons and job readiness, treating children as vessels for unverified and unofficial lessons on 'what employers want' and 'the hustle' instead of life's wonder. In the process how families engaged with libraries had begun to change, split between the need of being a place of escape and even much needed sleep for children, and a changed expectation from the public to be some kind of university preparation centre.

Really, there was a need for human touch and critical thinking to evaluate what children were hearing elsewhere, and to both mobilise and modify that knowledge on their own terms. Perhaps the monopoly on child education, first by parents and then by schools, had broken down. Between home, old institutions, and private entities like the software provider Library-Pro, came a complex balancing act. One played between these entities, sure, but it was the child on the tightrope. Whether they could stay on long enough to benefit from the growing diversity of education, or would fall from nervous exhaustion, that would determine the valley's future.

ADDITIONAL RESOURCES

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Bray, M. (2017). Schooling and its supplements: Changing global patterns and implications for comparative education. Comparative Education Review, 61(3), 469–491 (Open Access)	https://doi.org/10.1086/692709
CLIIP. (2024). Come rain or shine: Preparing public libraries for the future in an age of uncertainty. CLIIP (United Kingdom) (Open Access)	https://www.cilip.org.uk/page/future-libraries
Gupta, A. (2022, January 24). The 'shadow education' phenomenon. BERA Blog (United Kingdom & India) (Open Access)	https://www.bera.ac.uk/blog/the-shadow-education-phenomenon
Hollings, P. & Byrne, A. (2024, November 8) Turning the page: understanding the barriers to library use and how to encourage engagement. Blog DCMS Libraries. (United Kingdom) (Open Access)	https://dcmslibraries.blog.gov.uk/2024/11/08/turning-the-page-understanding-the-barriers-to-library-use-and-how-to-encourage-engagement/
Stevenson, D. L., & Baker, D. P. (1992). Shadow education and allocation in formal schooling: Transition to university in Japan. American Journal of sociology, 97(6), 1639-1657.(Open Access)	https://doi.org/10.1086/229942

ADDITIONAL RESOURCES

RESOURCE NAME	URL
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Zhang, W., & Bray, M. (2020). Comparative research on shadow education: Achievements, challenges, and the agenda ahead. European Journal of education, 55(3), 322-341.(Open Access)	https://doi.org/10.1111/ejed.12413

ADDITIONAL SCENARIOS

AI-POWERED DISORDER

SUPRIYA KULKARNI
THE ETHICS COMPANY

Supriya Kulkarni founded The Ethics Company in September 2021. She is an ethics consultant, brand strategist and human-centred designer. Interested in the intersection of design, technology, business and society, she tries to identify the pain-points and challenges for people, in order to develop human-centric solutions. She features in the list of "100 Brilliant Women in AI Ethics" 2022 by Women in AI Ethics, and was a finalist in the 2021 "Women in Voice" awards in the Diversity, Equity and Inclusion in Voice category. Her work focuses on raising awareness about potential ethical issues and negative impacts that arise from technology systems, design processes and business practices, and the ways in which these can be mitigated through ethics by design.

SCENARIO HIGHLIGHTS

- High adoption of AI technologies to generate, share and consume information.
- Access to information increases awareness of institutional shortcomings, leading to distrust in government, public institutions and media.
- Advanced AI systems develop dynamic knowledge bases. Control of these shift from centralized authorities to decentralised platforms.
- Content from unheard-of voices and places generates huge interest, but with concerns about credibility and reliability, partly due to shortcomings of popular AI models.
- People turn to informal networks and peer groups for news and information, leading to a disconnected and fragmenting information landscape.
- AI tutors replace many human teachers: education is AI-driven, personalized, and accessible. The value of traditional educational institutions is questioned.
- The research field is full of AI-generated studies: identifying and verifying authentic human-conducted studies from those created by AI, is challenging.
- AI tools help preserve endangered arts, languages and customs, create new artifacts, and share them with global audiences. This gives rise to renewed pride in local culture, heritage and value systems.
- AI platforms help foster community connections, but also magnify divisive voices, eroding social harmony.
- People consume content that supports existing ideas and beliefs: worldviews become limited by personal echo chambers, increasing polarization.
- New communities and groups emerge to address the critical challenges and complex ethical issues surrounding AI.

ADDITIONAL SCENARIOS

AI-POWERED DISORDER

In the year 2034, artificial intelligence becomes an integral part of the daily life of billions. From information to innovation, education to research, culture to environment, AI dramatically reshapes and transforms all areas of society.

GLOBAL SHIFTS

Economically advanced countries wield significant influence over key technologies and platforms, effectively controlling and shaping the global information flow. In these countries, AI reveals, as well as amplifies, existing social disparities, and a select few control most of the AI narrative. Although laws governing AI development and deployment are introduced, governments face significant challenges enforcing them.

Access to information increases awareness about institutional shortcomings, leading to distrust in government, public institutions and media. Public trust and loyalty shifts to AI companies and their leaders. Big tech now wields power over AI governance, positioning themselves as self-regulators and ethical authorities.

Emerging countries witness a different picture: AI and enhanced connectivity help overcome traditional obstacles in areas like education, agriculture, healthcare and finance, improving outcomes for millions. Big tech companies invest heavily in emerging markets with less regulations, enabling AI deployment with very few restrictions.

However, the heavy influence of foreign tech companies on domestic policies and decisions, raises public distrust.

NEW WORLDS

Radha, a young content creator residing in rural India, attends a Marathi-language college. Even with limited knowledge of other languages, she uses AI tools to convert Indian historical narratives into multilingual audio-visual content, for worldwide audiences.

Her story is similar to that of others using AI tools to generate and share content inspired by traditional and indigenous knowledge systems- ancestral recipes, folk stories, ancient remedies, spiritual practices. Content from previously unheard-of voices and places generates huge interest, but with concerns about its credibility and reliability. Popular AI models developed in economically advanced countries are not efficient in comprehending regional languages, dialects, or local contexts, leading to erroneous, biased, or harmful outputs. This creates a push for locally developed AI models.

ADDITIONAL SCENARIOS

AI-POWERED DISORDER

Media companies publish AI-driven content, raising questions about integrity, responsibility, and accountability. Generative AI tools like deepfakes and voice cloning are misused by bad actors to spread misinformation- the ease of using these tools amplifies harmful narratives, further degrading public trust in established institutions. People increasingly turn to informal networks and peer groups for news and information, leading to a disconnected information landscape.

AI systems generate fake but convincing data, but verification tools are ineffective. Roles like 'Content Verifier' emerge to control fake and misleading information. IP rights, plagiarism definitions, content authentication and certification boards, and ethical standards in use of AI for information, are debated topics. Energy groups demand critical interventions to counter negative impacts on the environment due to resource depletion, high energy consumption, and rising electronic waste.

AI leads the creation, integration and management of knowledge. Advanced AI systems are trained on all information generated so far. These systems devise fresh insights, novel theories, radical innovations, and dynamic knowledge bases.

AI tools not only anticipate needs, but customize and personalize the content and delivery of knowledge, enabling individuals to learn, create, and communicate with ease. Peer-to-peer networks, blockchain, and open-source platforms emerge, allowing verification, sharing, and preservation of knowledge. This shifts control from centralized authorities to individuals and communities.

NEW WORLDS

The London-based 'Red Booth Company' reimagine red phone booths as 'Knowledge Hubs'. Powered by mixed reality technologies, AI, and haptics, these kiosks provide immersive experiences, and are installed at multiple centres globally, enabling access to interactive learning, story-telling, and experiencing different realities.

Agus Irvandi, a teacher in Jakarta, Indonesia, partners with a friend to create a learning revolution: AI-powered earphones that translate lessons into local dialects in real time, adapting to the learner's individual speed and abilities.

Agus uses AI to translate the standard school curriculum which is integrated with learnings from indigenous value systems, preservation of local ways, and practical skills relevant to island communities. Government officials provide valid credits and certificates for learners.

Some educational institutes replace human teachers with AI tutors. BelajarAI, the EdTech company, partners with a pharma giant to manufacture easy-to-consume capsules that contain nanobots that can plug in knowledge about specific topics.

ADDITIONAL SCENARIOS

AI-POWERED DISORDER

Dr Alice Chua, based in London, barely remembers conducting research without using AI tools. Whether it is data analysis, literature reviews, or hypothesis generation, now AI does everything. Tasks requiring months of hard work are accomplished in days. Human researchers only focus on creating prompts and overseeing AI-generated results.

The research field is full of AI-generated studies: identifying and verifying authentic human-conducted studies from those created by AI, is challenging. Researchers continue to experience recurring challenges associated with traditional and generative AI systems like accuracy, bias, explainability.

Diminishing trust in government and public institutions also impacts the research coming from them. Dr Chua, who was with a government institute, now works with an independent group developing alternate interface protocols. The death rate from hazardous e-waste in emerging countries dramatically surges, prompting research into reducing reliance on electronic devices.

AI tools help preserve endangered arts, languages and customs, create new artifacts, and share them with global audiences. This gives rise to renewed pride in local culture, heritage and value systems, especially for marginalized communities who felt unseen and unheard before.

AI is the biggest curator of experiences, people consume content that supports and reinforces existing likes, ideas and beliefs, without much exposure to diverse perspectives. Their worldview, limited by personal echo chambers, leads to increasing polarization. AI platforms help foster community connections, but also magnify divisive voices, eroding social harmony.

New communities and civic society groups emerge in order to address critical challenges and complex ethical issues surrounding AI development, deployment, and usage.

IMPLICATIONS

EDUCATION

- AI tools create new ways of learning and accessing education, these diminish the value of traditional educational institutes, leading to an uncertain future for human educators.
- AI tools enable anyone to come across as an expert, learners need to be discerning about whose expertise to trust. Educators must focus on helping them create knowledge through self- effort.
- Educators must restructure current curriculum and delivery to evolving needs of learners. They must reimagine their own roles, along with the requisite training and upskilling.
- Educators must cultivate a diverse sets of skills among learners: critical, creative and inter-disciplinary thinking, along with value-based, collaborative, and cross-cultural thinking. This is crucial for a complex, but ethical and equitable future.

AI-POWERED DISORDER

- Excessive dependence on AI tools poses a threat to human abilities of observation, introspection, contextualization, sense-making. The value of interaction (dialogue, debate, discussion) also diminishes, since learners no longer interact either with teachers, or with peers.
- AI adoption must meet strict ethical standards: equitable access, security of student data, unbiased algorithms, human oversight in case of automated decision-making.
- Critical need for digital and AI literacy: understand limitations of AI tools, learn to identify trustworthy and dependable sources, use ethical and responsible approaches, both as creators and consumers of content.

RESEARCH

- Knowledge is generated through multiple sources, across geographies with varied regulatory frameworks: maintaining global standards of academic integrity and research ethics is crucial.
- AI systems can generate false information: replicating experiment results under strict conditions, as well as peer-reviewing research is a must.
- Identifying sources of data that directly bias and impact the nature, direction and quality of research outcomes is crucial.
- High AI adoption sees innovation in areas where AI excels, but domains requiring empathy, imagination, creativity or ethical judgement lag behind.

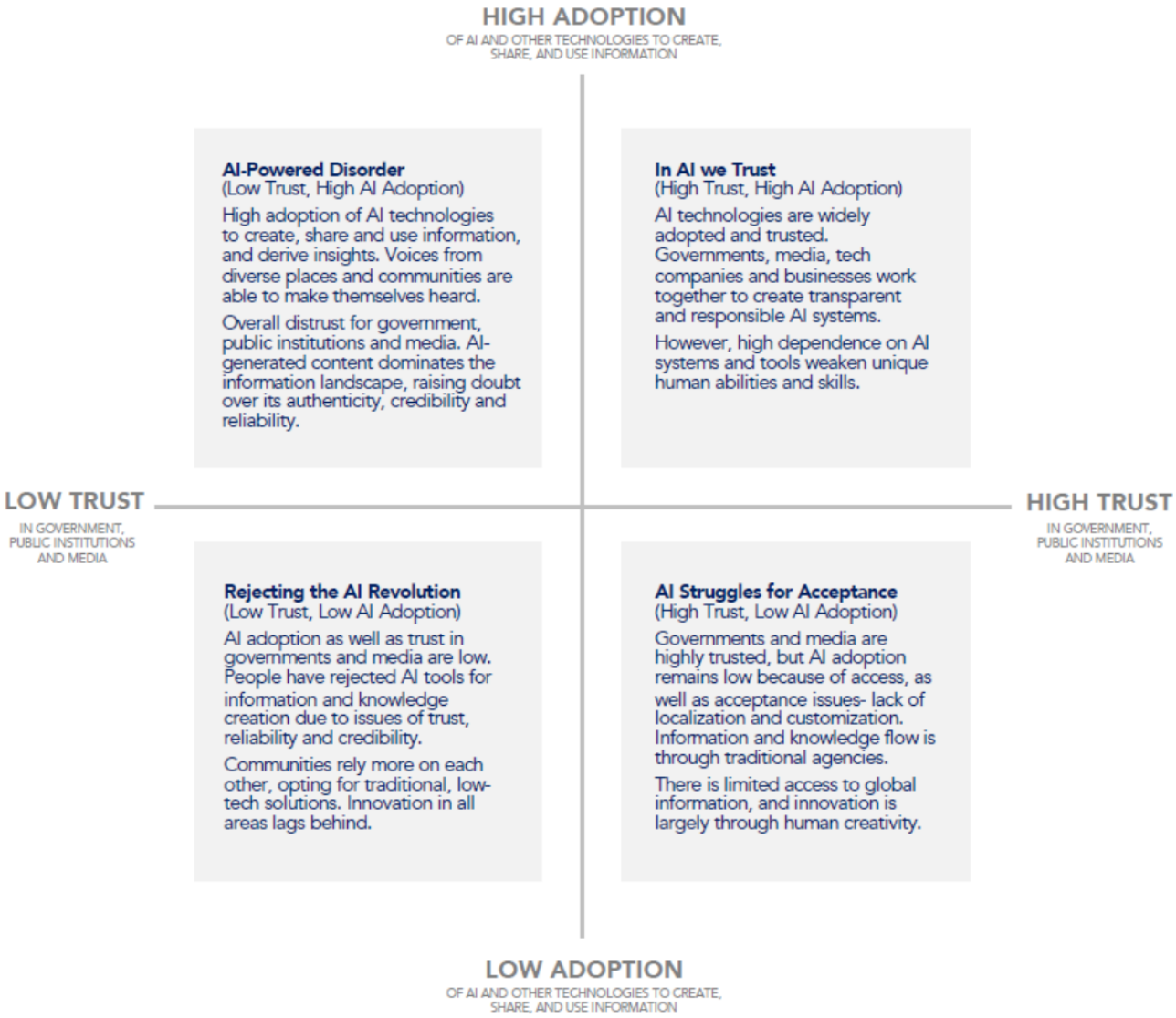
CULTURE

- AI can create and amplify discriminatory narratives against some communities, marginalizing and oppressing them further.
- Increased automation and lack of human interaction when dealing with government and public institutions, increase feelings of disconnection and frustration.
- The pervasive nature of AI systems challenge us to question fundamental values. Focus on core human needs and ethical imperatives during AI development and deployment is critical for creating a future that enhances, rather than diminishes our humanity.
- A deliberate exploration of the knowledge and wisdom existing in different cultures will widen perspectives and change limited worldviews. This is important for a future that looks different from the past.

ADDITIONAL SCENARIOS

AI-POWERED DISORDER

NOTE: this article draws on a way of looking at trends that explores what happens under different circumstances. In this case, the author considers what happens when take up of AI is high or low, with what happens when trust in it is high or low, giving options as below:



ADDITIONAL SCENARIOS

IT MIGHT BE ALL THE CHEMTRAILS RAINING DOWN ON YOU

BETH PATIN
SYRACUSE UNIVERSITY

Dr. Beth Patin, an Assistant Professor at Syracuse University's School of Information Studies, is a trailblazer in the field of library and information sciences. Her extensive research agenda revolves around ensuring equity in information, with a particular focus on crisis informatics and community responsiveness. She brings a wealth of experience, having been named an American Library Association Emerging Leader in 2007 and receiving an Early Career Award from the Institute of Museums and Library Services in 2021. Recently appointed to the prestigious New York State Regents Advisory Council on Libraries, Beth showcases leadership, innovation, and transformative contributions to the library and information sciences field. Drawing inspiration from her experience as a school librarian during Hurricane Katrina, she played a pivotal role in rebuilding and reimagining libraries in the aftermath, contributing to the development of crisis informatics. A change agent at her core, Beth continues to lead as the co-founder of the Library Information Investigative Team research group. Her dynamic presentation style and groundbreaking research have earned her invitations as a keynote speaker for prominent conferences, institutions, and meetings worldwide, attracting esteemed academics, leaders, and policymakers.

Currently, she is working on projects about epistemicide (defined as the devaluing, silencing, killing, or annihilation of knowledge), libraries during disaster and crisis, and digital humanities and the Civil Rights Movement. She won back-to-back best paper awards in 2022 and 2023 at the Association of Library and Information Science Education conference and her journal article, "Interrupting Epistemicide" won the Best Information Ethics and Policy Paper of 2021. In 2023, her teaching and service were celebrated by two awards: Early Career Excellence in Teaching Award from the Association for Library and Information Science Education and the Excellence in Graduate Education Faculty Award from Syracuse University.

IT MIGHT BE ALL THE CHEMTRAILS RAINING DOWN ON YOU

Conspiracy theories, fake news, and mis- and disinformation are running rampant. The siloed nature of social media has exacerbated the echo chambers and empowered individuals and institutions to sow mistrust.

Though some social media platforms attempted to fact check items shared on their platforms, others loosened guidelines under false claims of free speech. While fake news is a term that has been around since the 1800s, we saw an exponential growth in the ways people are manipulating media and information shared in virtual environments. under attack.

ADDITIONAL SCENARIOS

IT MIGHT BE ALL THE CHEMTRAILS RAINING DOWN ON YOU

These attacks are serving to undermine education, research, and science.

All too often, across various platforms, individuals arguing with each other will proclaim "do your own research". The ubiquitous access to information, without specific training and educational mandates for how we teach information and media literacy has led to a crisis of mistrust and bad information. The concept of research has moved from peer-reviewed publications to just searching via a search engine or perhaps social media video streaming platforms. Without sufficient information and media literacy, community members lack the complex skills to navigate the continual inundation of information, images, and videos, and evaluate the information presented. At the same time, the prevalence of "bad information" available online has led to the overinflation of people's perceptions of how well they understand the media they encounter.

This erosion of trust has also led to attacks on our knowledge institutions including schools, universities, and libraries and individuals that work in these institutions. The anti-education rhetoric has led to modern day book burning through laws and policies that control what information and stories can be shared in our institutions. These laws and policies are not just aimed at what materials can be included or taught in our institutions but is also being used to attack educators and librarians.

The explosion of misinformation combined with the erosion of trust continued to grow as generative AI became more prevalent in our society. This put information professionals and librarians at the forefront of this crisis. Where they could, they had to focus on media and information literacy both in public institutions but especially in mandated curriculums. However, focusing on information literacy just in schools was never going to be enough. Librarians faced a need to become advocates to help adults, especially those who are leaders in our communities, learn how to navigate information and misinformation. The skills required to navigate our current information ecosystem proved to be quite profound.

Librarians therefore needed to shift, not just to provide information but also to help articulate the veracity of the information shared both inside and outside of our institutions. It meant real-time fact checking on various media and social media platforms.

Previously, our field focused on neutrality and providing information without context, but increasingly it moved away from this model and from treating all information, platforms, and media as worthy of being in our collections.

ADDITIONAL SCENARIOS

IT MIGHT BE ALL THE CHEMTRAILS RAINING DOWN ON YOU

Though we have always curated information within our institutions, we doubled down on curating lists of reliable information sources, databases, including fact checking conspiracy theories by providing relevant information to help correct the spread of misinformation. However, it was not enough to just point out conspiracy theories or misinformation, we had to help people engage critically with the information they encounter rather than passively consuming it.

For librarians to help correct the erosion of trust, we had to engage with our community members and be willing and ready to partner with other institutions to help advocate for information and media literacy. This included policymakers who were making laws and regulations about what information could be accessed by whom but also with experts who could help shift conversations online and in communities to help us understand the rise of misinformation and how prevalent it had become.

Transparency became critical in helping to deconstruct conspiracy theories. Mapping how misinformation is created, how it gets shared, and eventually spreads is imperative helped correct misinformation as these false narratives spread. We needed to understand the information habits of our local community members and stay active on social media platforms to understand any emerging conspiracy theories or the creation and spread of misinformation within our communities. We saw that what happens locally was relevant globally and if we didn't work to correct misinformation and conspiracy theories locally, the impact would be felt globally.

In sum, libraries and information professionals increasingly found themselves called on to empower individuals to navigate our complex information landscape effectively to fight misinformation and rebuild trust in our communities.

KEY ASPECTS OF THIS FUTURE

- People lack the skills needed to evaluate various medias they interact with daily.
- The mistrust of information and institutions has led to an exponential growth in conspiracy theories.
- Social media has created an echo chamber where misinformation thrives and conspiracy theories are validated by bad actors, or at the very least misinformed actors.
- Laws, policies, and regulations continue to limit the type of knowledge and information that can be shared.
- Librarians must understand political advocacy to combat harmful legislation.
- Librarians must be embedded within their communities in order to start to rebuild trust locally.

ADDITIONAL SCENARIOS

NOTHING IS DIFFERENT, BUT EVERYTHING HAS CHANGED

R. DAVID LANKES
UNIVERSITY OF TEXAS

R. David Lankes is the Virginia & Charles Bowden Professor of Librarianship at the University of Texas at Austin's School of Information. He is the recipient of ALA's Reference and User Services Association 2021 Isadore Gilbert Mudge Award for distinguished contribution to reference librarianship. His book, The Atlas of New Librarianship won the 2012 ABC-CLIO/Greenwood Award for the Best Book in Library Literature. Lankes is a passionate advocate for librarians and their essential role in today's society.

NOTHING IS DIFFERENT, BUT EVERYTHING HAS CHANGED

Technological disruption is never evenly distributed across locations, industries, or aspects of daily life. The advent of the web dramatically accelerated internet adoption worldwide but in doing so created greater disparities between those who had access and those who didn't. Rural communities without broadband and the impoverished who couldn't afford computers and later mobile phones didn't just miss out on new information on the web, but steadily had decreased access to basics services of government and industry.

Tax advice went from phone to chat, booking flights moved from phone calls to web forms, and consuming media moved from the airwaves to apps. For every Estonia with mass civic investment there is a rural Texas where even slow satellite access is prohibitively expensive.

However, in all these disruptions, libraries have stood up to provide a vital safety net.

The scenario I present for libraries moving forward in an age of AI comes in the chimera-like use of AI and the opportunities that presents the field. In biology a chimera is an animal that contains two distinct genetic systems. The most accessible example is organ transplantation. I am a chimera. There is the flesh I was born with, but the blood that pumps through my veins is actually that of my son who donated bone marrow to cure my cancer. To look at me you couldn't tell – I look like I did before my blood and immune system was replaced. To quote Paul Simon, "Nothing is different, but everything has changed."[1] I will present my vision of 2034.

In the field of publication, AI generated texts have disrupted not only traditional industries, but also scholarly and literary peer review. Publishers have failed to walk the tightrope between AI increasing productivity and easing production, and alienating the writers and artists central to their work.

[1] https://www.paulsimon.com/track/once-upon-a-time-there-was-an-ocean-2/

ADDITIONAL SCENARIOS

NOTHING IS DIFFERENT, BUT EVERYTHING HAS CHANGED

In scholarly and literary publishing, the problem is not being unable to distinguish human versus AI texts so much as adjusting peer review to a thousand-fold increase in submissions. This too has failed.

What has replaced traditional publishing is a retrenchment to a smaller number of titles produced, and a focus on the unique and human writing as craft. Publishers have either shed popular media for selling quality and the value of a human authored texts, or they rely on revenues from selling licenses to tech companies to train AI products. A significant portion of human work at publishing companies is to navigate an increasing volume of self-published works. Publishers emulate streaming media companies such as Netflix that not only produce media but pin their value on finding the wanted in huge catalogs of media.

In scholarly and literary publication there is increasing use of AI tools to first detect AI-generated text, and then to evaluate the merit of these texts regardless of the author.

However, these specific examples point to a common impact of AI and any technology; seeking to put new innovations into old forms. Books look like books, but they are increasingly AI-enhanced- using AI to augment the work of the expert. Writers and illustrators use AI for drafting and inspiration.

Academic articles are published in pre-print sites and journals, with citations to AI models that "worked the data."

The role of librarians in this scenario remains remarkably constant. As the media we collect and the services we deploy will be AI-enhanced, the role of the librarian is less to find materials as to research and certify the materials' origins. At the beginning of wide-scale AI adoption, librarians around the globe were swamped with finding citations that often didn't exist, generated as AI hallucinations. Rather than seeing this as a burden, today we see this as a service that helps our community – a sort of reference renaissance.

There still exists a need to develop new forms of verifying information just as when we moved to digital formats we moved from notaries to digital signatures. Now we need new ways of authenticating information with digital certifications often held in distributed publicly encrypted ledger systems.

Take, as an example, photography. In 2024 the assumption was that video and images were most likely an accurate representation of reality[2].

[2] This idea is forcefully argued by Sarah Jeong in "No one's ready for this"

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NOTHING IS DIFFERENT, BUT EVERYTHING HAS CHANGED

Within the following two years the assumption became that photographs were either AI-generated, or AI-altered. New mass consumer photo apps built into phones made image manipulation easy. It started with removing people and objects in the background or automatically changing perspectives and color matching your preferences. In 2024, these tools not only altered images by removing objects, but by adding to them. Wish your friend could have joined you on vacation? With a click they are added in a way that no one can tell. Wish your holiday gift to your children were more extravagant? Click, and the evidence of Christmas past is now altered. This now mass consumer level functionality and resulting change in the role of photography occurred in a two-year period. Faster than anyone could adapt to.

In a world of "doubt first" images, librarians today are called on not as arbiters of quality, but arbiters of reality. Rather than teaching librarians skills such as prompt engineering and AI-enhanced search, librarians are increasingly prepared to detect deep fakes and hallucinated information.

Librarians have stepped up to support vulnerable communities not simply in awareness of AI (training), but in using AI tools to tell a community's story. They also have recreated traditional services like government document repositories into digitally franked originals ensuring community trust.

This focus on the quality and authenticity of documents at first led to a reactionary return to past practice with a focus on collections. Holding original copies of documents was reminiscent of cloistered monks chaining precious manuscripts to shelves in the Middle Ages. What evolved was the collection function of the modern library framed in the context of community co-ownership. The growth in authenticated data repositories across library types was not because of the needs of a church, or government, but of a community seeking to move ahead on a vision of the past that was trustworthy.

To be clear AI did not change the overall mission of librarians: to improve society through knowledge creation. This mission drove librarians to actively shape and co-create AI tools that met the ethical standards of communities. This meant simultaneously helping community members (students, faculty, mothers, legislators) create and share their stories while helping those same members navigate a fundamental change in publishing and education.

ADDITIONAL SCENARIOS

NOTHING IS DIFFERENT, BUT EVERYTHING HAS CHANGED

Librarians ensured both the authenticity and accuracy of documents such as papers, pictures, and novels, while also educating the public that the quality of information is context-dependent, shaped by individuals resisting the enforcement of a singular viewpoint on what constitutes acceptable knowledge.

In pursuing this mission librarians working with teachers and policy makers forged a new form of information literacy. An information literacy that was no longer about generating skepticism with methods of interrogating information sources, but instead about coping with a world where ALL information is seen as suspect. The ultimate solution, however, was not a new AI detector, digital watermarking, or massive re-education on AI tools. It was instead in fighting social isolation. The bottom line was that to overcome a world of doubt first digital data, people simply had to build trust in each other and be supported in dealing with the long term corrosive effects of doubt.

Librarians began a concerted effort around quelling social isolation, political fragmentation, and building new local and national narratives that brought people together, rather than being built on grievances and otherism. We still are fighting this fight in 2035, but now librarians are actively engaged and see narratives and story-telling as their core operation.

Stories grounded in data, using AI tools to make the narratives accessible, and whose impact is measured in lives saved.

In the end AI forced society to face fragmentation exacerbated by technological disruption. Yet, librarians were key advocates to demonstrate that it was (and is) the fragmentation of trust and community identity that was causing disruption, not the technology. So in the end, nothing was different, but everything changed.

[3] For more on trust, narratives, and saving lives see: https://davidlankes.org/demons-determinism-and-divining-the-future-of-information-science/

ADDITIONAL SCENARIOS

SOMETHING'S ROTTEN WITH THE STATE OF OUR ARCHIVES

MICHAEL J. OGHIA
OGHIA ADVISING

Michael J. Oghia is the Belgrade, Serbia-based founder of Oghia Advising and a communications and engagement professional working within the digital infrastructure, cyber resilience, Internet governance, and media development ecosystems. He has more than a decade of experience in sustainability, conflict resolution, development, journalism & media, infrastructure, and policy across seven countries and regions: The United States, Lebanon, India, Turkey, the Netherlands, Serbia & the Balkans, and the Nordics. Connect with him on LinkedIn or email.

SOMETHING'S ROTTEN WITH THE STATE OF OUR ARCHIVES

Thanks to new phenomena affecting digital systems such as link rot, digital decay, and fickle technological changes, as well as more insidious attacks on archives via regulatory and legal developments – such as the malicious use of Right to be Forgotten (RTBF) policy – the entire network of knowledge upon which 21st society is built has been undermined.

We are in an uncertain future. Whilst seemingly self-evident, the advent of the Internet instilled a false sense of complacency concerning the security of the past. New threats have emerged to the very foundation of information management and the preservation of knowledge.

These threats undermined the original vision of the Internet, one that indeed echoed the role of libraries in their essence: a space for communities to gather and create, share, discuss, and store information.

This is a role that drew on the legacy of the Library of Alexandria and the scholastic inheritance instilled by the Greeks, Abbasids, and Enlightenment thinkers after passing their torch of consciousness and discovery to globe-spanning universities, multi-billion-dollar research institutes, and gargantuan digital repositories.

With regards to culture, science, and collective intelligence, nothing exists in a vacuum. Intellectual progress is cumulative but not linear. To stand on the shoulders of giants requires the proverbial ladder to reach them – access to their ideas, insight, historical context, and the ability to retrace the complex set of circumstances that led to not just what they discovered, but how. To challenge them, understand them, iterate upon them, and prevent them from diminishing.

ADDITIONAL SCENARIOS

SOMETHING'S ROTTEN WITH THE STATE OF OUR ARCHIVES

This is the underlying principle that has made access to information sacrosanct. We, as a species, are so utterly reliant upon it – for progress and power; for education as well as exploitation. And whilst it has faced renewed threats ranging from covert censorship to book bans, an insidious corrosion has eaten away at the fundamental nature of how we interact with knowledge in the 21st century: the digital archive.

Whilst the presumption that digital formats are permanent is reasonable, as with organic material, digital formats are not immune from degradation. We now face a new form of digital decay: "link rot." This phenomenon refers to data becoming corrupted over time so that they are no longer accessible, and it has undermined that aforementioned presumption. As it applies to digital archives, link rot occurs when websites are restructured, servers go dark, companies go out of business, software upgrades break pages and links, or content hosted on websites is otherwise inaccessible due to myriad problems redirecting to the site, rendering information unreachable.

This poses a critical challenge to any institution seeking to preserve knowledge and ensure it is accessible. Despite this, we have careened into a world where the promises of the "information superhighway" has collapsed onto itself – dragging trust, public interest, and a fact-based society along with it.

In total, 38% of all web pages that existed from 2013 to 2023 are no longer accessible. Digital books are deteriorating faster than physical ones.

Collective memory has been wiped out by censorship and erasure. Open-access journals have vanished, all whilst millions of research papers have disappeared from the Internet. Major digital publishers have quietly deleted older articles to achieve better search engine optimisation (SEO) rankings – a modern manifestation of sacrificing to appease the (almighty) algorithm. Judicial opinions and law review articles, whose citations act as a cornerstone of modern democratic society, legal theory, and jurisprudence, face the same ephemeral fate. Archives of notes, letters, and correspondence from iconic writers as lionised as George Orwell have been sold off to the highest bidder and lost to history – an egregious twist of fate for someone so dedicated to open and free society that not even Big Brother could have designed such an abominable form of "cultural vandalism." Even the revered and steadfast digital object identifier (DOI) system is not exempt from a dismaying "preservation deficit," nor are the archives of a journalistic institution as venerated and well-resourced as The New York Times.

On the contrary, our relationship with information in the modern world is that of simultaneously reconciling the endless scroll of TikTok and the ability to view millions of search results with a growing black hole of research and dissipating wisdom.

ADDITIONAL SCENARIOS

SOMETHING'S ROTTEN WITH THE STATE OF OUR ARCHIVES

Despite information's propensity for wanting to be free, it invariably has become expensive as well. As journalist David Streitfeld once wrote, "The right information at the right time can save a life, make a fortune, topple a government. Good information takes time and effort and money to produce." As digital technology continues to change faster than we can keep up, we have concentrated the power that knowledge brings into the hands of a few. From restricting content behind paid subscriptions ("paywalling") and geographically limited ("geoblocking") content, to the cost, accessibility, and quality of cloud storage and the depreciation of digital storage devices, we have seriously jeopardised our archives, eroded institutional trust, and endangered the public record – a bedrock of democratic societies and social order.

Determining what information is relevant and who has the power to determine its relevance over time is central to multiple facets of democracy, not least of which are freedom of expression, press freedom, and access to information. Just as link rot has imperilled archival data and the robust network of hyperlinks that journalists, researchers, and legal scholars rely on, what were once considered emerging challenges – now well-established ones – within the policy and regulatory sphere also gravely endangered digital archives.

Chiefly among them was the so-called "Right to Be Forgotten" (RTBF). This legal concept broadly refers to scrubbing personally identifiable information from content to render it less accessible (erasure), removing content from the results of a search engine (delisting or deindexing), or completely removing content from the Internet (oblivion) so that it is not readily accessible to end users.

RTBF laws, policy, and jurisprudence continue to impact content accessibility, and they were identified as a threat to libraries and their mandate by IFLA itself as far back as 2016. With new RTBF spread and evolved within new legal and cultural contexts, it placed archives — the foundation of information management and knowledge — at risk, all whilst it had the pernicious effect of empowering unscrupulous governments with the ability to conceal information from public scrutiny and censor content.

ADDITIONAL SCENARIOS

SOMETHING'S ROTTEN WITH THE STATE OF OUR ARCHIVES

Besides threats stemming from RTBF policies, intellectual property (IP) and copyright restrictions posed a hazard to digital archives as well. Look no further than the Internet Archive – a non-profit digital library that used to be based in California before it shut down. It provided free access to millions of digitised materials, including a digital backup of billions of web pages via its Wayback Machine. For a time, we were so dependent upon this modern Oracle to gaze upon the Internet's past, as it was essentially the only publicly accessible backup of the Internet that existed. Publishers took aim at the Internet Archive, however, and they won – ensuring it suffered a death from a thousand copyright cuts. What happens now to our collective (digital) past?

Beyond the rich network of links that once underpinned modern technology and scientific research, the hardware and infrastructure upon which it depends has faltered as well, in part, due to the rapid developments with technology and its capricious nature. Already, many older digital devices have become unusable with time due to the lack of software support. As technology changes, our ability to access older media has become more difficult if not impossible – the lack of a necessary cable, unsupported devices or formats, inaccessible or broken devices from decades past, nonexistent input ports or connectors, new security protocols and standards, depreciating products and services, or updated Internet browser requirements.

In sum, we now inhabit a world where everything dies – including information.

OUR FUTURE IS UNWRITTEN, BUT NOT ALL IS LOST

Even in the face of the challenges described above, the scenario where our past is inaccessible does not have to become reality. The future is not certain; there is much that can be done, and libraries are critical actors to ensuring we do not herald in a neo-Dark Age with open arms.

Despite being under attack themselves, libraries today have many tools available to resist such a future. These include but are certainly not limited to:

- Contributing to preventing link rot on Wikipedia by organising workshops to support the Wikipedia community and preserve local knowledge.
- Collaborate with the Internet Archive through partnerships, contributions, assisting with archiving and storage, and making information available to the Wayback Machine.
- Encourage library patrons to use the Wayback Machine, and offer training sessions to community members on what it is and how to use it.

SOMETHING'S ROTTEN WITH THE STATE OF OUR ARCHIVES

- Partner with local hacker groups and engineering schools (if applicable) to host local repair workshops and electronic repurposing to bring people together, preserve older information formats and systems, contribute to community building, and cut down on unrecycled electronic waste (e-waste).
- Support IFLA's access to information initiatives and advocate for greater resources to support libraries' goal to preserve digital archives under the aegis of the 2014 Lyon Declaration.

The challenges ahead are vast, but they do not have to be insurmountable. We can, through collective action and collaboration, both preserve the past and usher in the future of information that we need. Over the course of the more than 12,000 years since humanity left its hunter-gatherer roots behind en masse, information has been lost, destroyed, fragmented, and burned. Yet, it still finds a way to endure. Libraries have been at the forefront of this endeavour since antiquity. Together, we can ensure that the future will be no different.

ADDITIONAL SCENARIOS

LIBRARIES AS LIFEHUB

MEI LIN FUNG
PEOPLE-CENTERED INTERNET

Mei Lin Fung is Chair and co-Founder (with Vint Cerf) of the People Centered Internet. Through People Centered Internet she works to ensure that people are at the center of the Internet as digital interdependence reshapes societies and economies. A key focus of her work as People Centered Internet Chair is to promote resilient communities financed with digital assets, using data so that communities can connect and members can thrive. She draws on her early training as a Financial Analyst at Intel, in Operations Research at Shell, and her extensive experience in developing Customer Relationship Management (CRM) approaches, to bring systematic evidence based analysis to the complex supply and demand for information. She also worked as socio-technical lead for Federal Health Futures at DoD where she realized that the financial sustainability of Community Health Centers in the US can be greatly enhanced by applying the lessons learned within tech corporations on managing operations to improve effective delivery of desired outcomes. Through People Centered Internet she has built alliances based on people-centered ecosystems with the IEEE, World Economic Forum, World Bank, UN and others at the country and regional level.

PREAMBLES

In 2035, libraries have evolved into dynamic hubs integrating digital innovation, community engagement, and lifelong learning. They are critical players in both global and local contexts, supporting the development of Micro, Small, and Medium Enterprises (MSMEs), fostering literacy, and enhancing cultural understanding through innovative use of technology adapted to the needs and contexts of people and places. Libraries are no longer just repositories of books and knowledge; they are vibrant centers where technology and human interaction converge to address global challenges and promote inclusive understanding of the past, present, and future both regionally and globally.

Librarians act as navigators, guiding communities through visual maps to sustainable resilience, prosperity, and flourishing.

This essay explores how the future of libraries will unfold at both macro and micro levels, highlighting implications for education, research, and culture. The scenario presented imagines a day in the life of Amina Mwangi, a senior librarian in Dar es Salaam, Tanzania, illustrating how libraries can become catalysts for digital transformation and social development.

LIBRARIES AS LIFEHUB

VIGNETTE: A DAY IN THE LIFE OF A LIBRARIAN IN DAR ES SALAAM, TANZANIA IN 2035

MORNING

Amina Mwangi, a senior librarian (also known as a Digital Navigator) at the National Library of Tanzania, begins her day with breakfast at home with her family. Over a simple meal of chapati and chai, the family uses a visual map to share their plans for the day and the coming week. AI tools facilitate asynchronous communication, allowing Amina to see updates from her family and colleagues. By 8:00 a.m., Amina takes a morning walk around her neighborhood, preparing mentally for the day ahead. Her schedule, optimized by AI for her energy levels, interests, and duties, allows flexibility to adjust as needed. During her walk, she listens to a podcast series recommended by a colleague, which immerses her in Southeast Asian cultural heritage and folklore.

At 8:45 a.m., Amina arrives at the library, a bustling LIFEhub for digital learning, innovation, and community engagement. The library's AI assistant, Habari, provides a briefing on the day's events, including a virtual collaboration session and meetings on cross-border data flows and trustworthy AI. Habari shares visual maps and conducts initial check-ins about participants' commitment and engagement, allowing Amina to tailor her approach for deeper engagement.

MID-MORNING

At 9:00 a.m., Amina heads to the Community Learning and Living Lab, where she facilitates a virtual tour titled "Exploring Tanzania's Natural and Cultural Heritage." Using advanced virtual reality (VR) technology, participants from across Africa and Europe explore Tanzania's national parks and historical sites. Habari conducts a check-in with participants, allowing them to share their thoughts and excitement and any personal challenges that might affect their experience. This information helps Amina foster more engaging discussions that align with both personal and collective goals, but also builds stronger understanding of AI as a technology and its more recent developments as well as reinforcing data literacy skills.

Following the virtual tour, Amina transitions to a special gathering in the Citizen Science room. The library, a hub for digital innovation, also serves as the central repository of scientifically validated data for the community. Today's gathering focuses on Community Governance Over Research and Scientific Data.

LIBRARIES AS LIFEHUB

10:15 A.M. - COMMUNITY GOVERNANCE OVER RESEARCH AND SCIENTIFIC DATA

The Citizen Science room is vibrant with activity as community members, scientists, educators, and librarians discuss how the community can have greater governance over local research and data management. This session empowers communities with the knowledge and tools to actively participate in the scientific process and influence research agendas that directly impact their lives. Amina makes sure to note down lessons and ideas in order to feed back to colleagues contributing to an African openly accessible data platform.

INTERACTIVE DISCUSSION ON DATA GOVERNANCE

Amina opens the session by highlighting the importance of community involvement in setting research priorities, managing data, and ensuring equitable sharing of research benefits. The discussion centers on three main areas:

1. Defining Community Research Priorities: Participants share perspectives on research topics based on community needs. The library's AI-driven visual map displays real-time data on local health, economic activity, and environmental conditions, informing discussions and highlighting areas for impactful research.
2. Data Ownership and Ethical Use: The conversation explores data governance, focusing on questions of ownership, sharing, and ethical use. The library's role as a repository of validated data is discussed, emphasizing transparency, privacy, and community consent. Participants break into smaller groups to draft a community data governance framework using digital collaboration tools.
3. Building Local Research Capacity: The gathering discusses how the library can build local capacity for research through workshops on data analysis, scientific methods, and digital literacy. These workshops aim to empower citizens to contribute to and critique research, fostering inclusive knowledge creation.

USE OF TECHNOLOGY AND COLLABORATION TOOLS

Advanced digital tools facilitate the discussion, with AI-powered translation services enabling multilingual communication. Real-time polling and interactive data visualizations help gauge community sentiment and illustrate governance model implications, as well as building confidence and skill in using such tools among the community. This integration of technology ensures inclusive and productive participation.

LIBRARIES AS LIFEHUB

OUTCOME OF THE GATHERING

The session concludes with an agreement to establish a working group to develop a formal data governance policy reflecting community values. A calendar of workshops and events is also planned to enhance local research capacity and maintain ongoing dialogue about science and data governance. Amina makes sure the digital repository is relevantly updated with these outcomes and plans the next steps with the core group.

11:30 A.M. - TRANSITION AND LUNCH BREAK

Following the gathering, Amina reviews feedback from the session to adjust upcoming activities in the Community Learning and Living Lab. She heads to a nearby gym for a workout while listening to a podcast on "Digital Transformation in Libraries," gaining new ideas for her action journal. Lunch with a friend follows, providing a chance for personal connection and community discussion.

AFTERNOON

At 2:00 p.m., Amina participates in a meeting on cross-border data flows, facilitated by Habari, which uses visual maps to align participants' goals and expectations. The discussion is productive, with participants exchanging insights and collaboratively solving problems.

Real-time digital dashboards capture key takeaways and next steps, ensuring no need for manual data reporting.

3:15 P.M. - GLOBAL MSME INNOVATION HUB

Amina transitions to the Global MSME Innovation Hub within the library, designed to support MSMEs through global collaboration. Today's session involves MSMEs from Tanzania, Kenya, and Rwanda connecting with peers worldwide. The AI4SME platform provides adaptable modules to enhance operations and strategic planning, fostering global collaboration to improve supply chains, product design, and market trends.

LATE AFTERNOON

By 4:45 p.m., Amina joins a virtual meeting on trustworthy AI with diverse community members and experts. The discussion focuses on ethical AI use in local health initiatives and community-driven approaches. Visual maps help participants identify areas for contribution, and a check-out session ensures alignment for the next phase.

LIBRARIES AS LIFEHUB

EVENING

At 6:00 p.m., Amina concludes her workday and returns home to enjoy dinner with her family. She reviews project summaries generated by Habari, adjusting her plans for another productive, balanced day.

VISUAL MAP OF THE COMMUNITY AND GENERAL USAGE

A standout feature of the library is a 3x4 meter interactive visual map of the community, prominently displayed to enhance engagement, digital literacy, and track community assets. It serves multiple purposes, such as ensuring the reliability and relevance of community data while allowing individuals to explore their interests and strengths.

- Health Metrics: Displays real-time data on community health, helping identify trends and areas needing attention.
- Prosperity Indicators: Tracks economic activity and opportunities for growth, aiding local business development.
- Cultural Vitality: Showcases cultural engagement and promotes participation in local events.
- Realization of Potential: Focuses on education and personal development, providing personalized recommendations for growth.
- The visual map is interactive, inviting community participation to ensure it remains accurate and relevant. It is a valuable tool for enhancing digital literacy and fostering a culture of continuous learning and self-improvement.

CONCLUSION

This future scenario illustrates how libraries have transformed into dynamic centres supporting digital learning, innovation, and community engagement. They serve as local hubs and global networks, enabling diverse populations, at all ages, to participate in the digital age and contribute to economic and social development. Integrating AI and IoT technologies enhances efficiency, supports lifelong learning, and facilitates cross-sector collaboration, positioning libraries at the forefront of inclusive education, research, and cultural preservation.

LIBRARIES AS LIFEHUB

KEY ASPECTS OF THIS FUTURE

- Global and Local Integration: Libraries connect people and ideas across borders.
- AI-Enhanced Collaboration: AI tools reduce meeting time and enhance engagement.
- Support for MSMEs: Libraries help businesses innovate and grow through shared learning.
- Lifelong Learning and Digital Literacy: Programs and resources for all ages promote continuous education.
- Cultural Preservation and Exchange: Digital tools facilitate the preservation and understanding of cultural heritage.
- Health and Community Well-being: Libraries support AI initiatives to improve health outcomes.
- Work-Life Balance: AI integration allows balanced personal and professional life.
- Real-Time Data and Impact Tracking: IoT devices provide real-time insights into project outcomes.
- Customized Education and Research: Libraries offer tailored resources to support diverse learning needs, including on new technologies.
- Interactive Community Engagement: Visual maps enhance data reliability and encourage community contribution.
- This scenario promotes a holistic view of libraries as active participants in shaping a more inclusive, innovative, and culturally rich and resilient global society.

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ALL THE WORLD'S A STAGE!

DANIEL NWAEZE
ONE YOUNG WORLD

Daniel is a programme specialist with a focus in communication for development. His work involves supporting international and development organizations to build communities and shape narratives through media and information literacy (MIL). This includes leading programmes for young people to innovate and communicate the future we want, as the global youth coordinator of the UNESCO Media and Information LiteracyAlliance.

Daniel currently works as the Community Engagement Manager at One Young World, a global community of 17,000+ young people in 196 countries to build a fair, sustainable future for all.

A REFRESHED AND RENEWED MEDIA LANDSCAPE

2024 was a "super election" year which posed a once-in-a-generation opportunity: more than 3.7 billion people in 80 countries were voting. With this great opportunity to democratically elect leaders and parliament representatives comes a great dilemma; how do we know what is best for us and who can best represent these ideals in government for the commonwealth of our country and its citizens?

Votes will be counted, but more importantly, voters want to feel that the way it was collated, counted, and communicated and the corresponding technologies and approaches used, reflects the majority's will. With this intent, who or what shapes the majority? The media who treads carefully and is usually a gatekeeper? Social media where information is usually a bubble of our friends or Artificial Intelligence (AI) which generates output based on information we feed it? Who then do we trust?

Before the mid-2000s, we largely depended on traditional media to present candidacy options to those intending to vote which influenced our decisions. Subsequently, disruptive technologies like social media started to play key roles in complementing the traditional press. With the rise of digital accessibility, people are now asking further questions and seeking alternative answers during elections (as well as during other major events). While we were still grappling with this dilemma, a swift landscape disruptor became mainstream: artificial intelligence.

2024 proved to be a landmark year for elections, triggering questions about who or what to trust: the traditional media that got us through the 20th century, social media that democratised knowledge in the 21st century or artificial intelligence that is swiftly disrupting access to information in our world today.

In particular, it exposed a growing contrast between macro- and micro-level information environments.

ALL THE WORLD'S A STAGE!

In the former, traditional media, libraries, and educational institutions still tended to hold sway, although had to deal with a sense of elitism linked to the fact that it tended to be most accessible to the highly educated and those with status.

In contrast, at the micro level, big tech, social media and AI had encouraged individuals to be their own institution and their own community while also levelling the playing field. Access to this was determined not and whose access is determined not by education or abiding by scientific principles, but by ownership of a digital device and connection to the internet.

Moving forward ten years, what does the democratic decision-making process look like? How do we elect leaders who can make or mar our countries, shape our identities and determine how we exist as communities.

In the late 2020s, we faced a crisis, with it becoming more and more common for election results to be contested as people simply followed whatever their media of choice told them. Levels of trust in institutions and societies as a whole were seen to drop dangerously, as governments, organisations and individuals leveraged technology and a breakdown in the conversation to create individual or community silos.

These served the short-term interests of individuals, but ultimately led to a deeply contested election that could only be resolved when a citizens' convention was called to develop a new digital constitution, setting parameters for the information environment. The general view among the population was simply that they had had enough of being put into conflict and competition with each other, and that it was time to do things differently. In other words, we needed a new practical approach to rebuilding trust in our information ecosystems and community building. Classic approaches brought us so far but neared the end of their usefulness as innovations and disruptions continued to unfold driven by AI and machine learning.

In particular, we found a healthier way of dealing with the fact of differing opinions – something that will be the case as long as humanity exists. Our information systems therefore needed to accommodate the freedom to have these conversations, and challenge and evolve beliefs, while continuously building communities.

Democratic debate now takes place in a multi-platform environment. First of all, the social media of 2024 was replaced with widely accepted and trusted digital platforms offering a space where people

feel safe to express views, but do so with a readiness to listen to others.

In doing this, the potential for AI to enhance this sharing and to help envision potential futures is realised. In particular, it began to develop the ability to support in fact checking and labelling claims and assertions where were not backed up by real evidence. More broadly, we have seen increasing global acceptance and endorsement of principles that define responsible and trustworthy AI, which now has a recognised place in everything from books to traditional media and social media. The level of acceptance of use of AI in healthcare in 2024, for example, is now widespread. This is linked both to the development of regulations around its use, the level of public understanding of its operation and implications, and competition between AI providers based on quality and ethics. Those using it unethically were exposed and saw a loss of trust among citizens.

These platforms operated alongside the traditional media. Rather than trying to present themselves as gatekeepers (which diminished trust) or promoting bias, traditional media discovered a role in driving transparency and efficiency which then reflected on social media and AI. The result was not always perfect, but the process helped to determine integrity and how society trusts the outcome – they earned respect rather than demanding it. Traditional media and academia found a way to mutually co-exist alongside social media and generative AI rather than compete, building on the fact that humans will always need options, social connections, and require real-time updates.

AI's machine learning process did lead to a new renaissance, but crucially it did this hand-in-hand with other developments. The future of information proved to lie not in the competitive results between traditional media, libraries, social media and AI; but in the integration and collaborative outcomes of these forms. Humans' craving for credible information from AI, ethical use, not abuse came to the fore, and enabling regulation and integration took the lead rather than. Government, media house owners and big tech chose to put people first above profits.

By opting for the integration and collaboration of these forms, media houses themselves moved away from bias, while big tech closed the gap in disinformation through vetting processes in social media and its AI machine training while the government created the enabling laws. This synergy ensured that trust was rebuilt in the processes that define us and restores integrity to the very foundations of humanity: connections, trust and community.

Finally, governments reconsidered their role away from purely addressing problems and embraced the role of enabler to drive ethical usage as the custodian of the people they represent. They ensured support for fact-checking and public interest media, and ensured a complete transition to open access for research publications in order to feed healthy discussion.

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ADDITIONAL SCENARIOS

THE PEOPLE'S TECHNOLOGY AUTHORITY

ELINOR CARMI

Dr. Elinor Carmi is a digital rights advocate, feminist, researcher and journalist who has been working on data politics, data literacies, data feminism, data justice and internet governance. In the past five years she has successfully won grants from UKRI, ESRC, and Nuffield Foundation together with colleagues from academia and NGOs. Between 2021-2023 Dr. Carmi won a Parliamentary Academic Fellowship working with the UK's Digital, Culture, Media & Sport Committee, and from May 2024 she has been selected to be an Expert Member of the UK Information Commissioner's Office Technology Advisory Panel. She has been invited to be an expert advisor for several digital rights NGOs such as: Amnesty International Tech, UNESCO, Demos, 5 Rights, Royal Society, and the Norwegian Consumer Ombudsman.

The proliferation of AI has dominated the 2020s so far. Every sector, community and profession has been influenced. Governments, local authorities, libraries, brands, and even the education sector are adopting AI technologies because they want to be more innovative and efficient, but more importantly - cut down costs. In just 3 years, all of these sectors have cut down their employees by 70%, because with the aid of AI they are able to produce ideas, content and teaching material within seconds.

This has created a chain reaction that spiraled out of control: tens of millions of workers from various sectors have lost their jobs. Ranging from those in creative industries such as animation, graphic designers, writers and musicians, and onto education industries, such as university lecturers, teachers, and librarians, and finally journalists. In addition, multiple elections have been influenced by deep fakes created to tilt results towards particular extreme candidates. To make things worse, people have become chronically ill due to the irreversible environmental damage that the increase in the use of AI has created, which also caused mass migrations to cooler or hotter places.

Things were looking desperate and without any positive future to look forward to. But one day, things started to change. Music star Taylor Swift has teamed with KPop idols BTS, BlackPink and others to create a unique dance on TikTok that will encourage people to start uniting through their communities on the encrypted messaging app Signal. These communities have created citizen assemblies, which consist of demographically diverse participants from each community to get a more contextual understanding of the issues at hand. With the help of translators who were facing unemployment because of AI, a crucial decision was made in a unanimous vote across citizen assemblies worldwide - A new global authority will be established called The People's Technology Authority. The People's Technology Authority (PTA) will be a global authority run by citizens across the world and meant to prioritize people's wellbeing and rights, as well as the environmental issues at the core.

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VISION, STRUCTURE AND CONDUCT OF THE PEOPLE'S TECHNOLOGY AUTHORITY (PTA)

The PTA was established from a global bottom-up organization of citizens through online assemblies that were run by diverse groups and facilitated in a democratic way. The idea behind it is to shift the power hierarchies where the tech CEOs and companies are at the top and everyone else trails after them in the distance. The PTA principles are built on a belief that instead of acting after tech companies have already harmed people, our societies and our environment, citizens assemblies decided that there is a need for a proactive approach to act, review and evaluate which kind of practices can and should be allowed with technology. The PTA objects to ideologies that promote 'innovation' over people and the environment's wellbeing, and promoted the notion that not every technological product or service should be developed. We must be able to say NO when we realize technology can harm us (also inspired by the Feminist Data Manifest-No). Being a positive and future facing organization, not only does the PTA recognize and limit harmful technologies, but actively seeks to develop helpful technologies.

HOW PTA AFFECTS OTHER SECTORS

The PTA consists of specialists and union groups who are affected directly and indirectly by technology to make decisions about: 1. Whether the technology should be developed or not; 2. If the technology should be developed, what needs to be done to ensure the safety of people and the environment; 3. Yearly audits to make sure the technology is conducted according to the guidelines it has received and adopted comments for revisions.

Libraries will receive new powers and be the places where some of the meetings will be conducted, and in particular a space where educators from all levels and librarians will co-develop and run technology literacy workshops. These will include but are not limited to topics around data, digital, AI, internet of things, virtual reality and more. The workshops will be designed for different groups who have different needs, such as children, young adults, adults, the elderly, and people with both physical and learning disabilities. The workshops will also be co-developed with filmmakers, animators, game designers, and graphic designers to create different formats, such as films, TV series, animation as well as booklets, online games and audiobooks. This is in order to include people who cannot join the technology literacy workshops in person for various reasons: disabilities, immunocompromised, work and caring responsibilities, and sometimes mental barriers like depression, anxiety and phobias. For each format, different artists will be employed, such as film/TV/theater actors, voice actors as well as makeup artists, set designers and costume artists who were facing unemployment in the wake of the rise of AI.

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In addition, each library will have a support team that will provide ongoing support for its local community after the workshops, both in person and online (visually and audibly), so that if people did not understand something or have additional issues, concerns or questions they can be provided with the tools and knowledge to assist them.

Tech companies will have to pay a 50% tax on their profits that will be divided to the following organizations: PTA, citizen assemblies, libraries, workers unions, environmental organizations, health system and a special fund for compensation for mental and physical harms that were caused before the establishment of PTA with no statute of limitations.

Librarians, journalists and researchers will start working together to provide input in different stages of decisions-making: 1. Examine the products presented to the PTA; 2. Examine the audits brought to the PTA annually; 3. Provide recommendations for revisions for tech products, services and software. In addition to that, in each country, these specialists will work together with local citizen assemblies to address their needs, concerns and aspirations to co-develop with them ideas for technologies that they think would benefit their communities. Once they have co-developed a prototype idea for these community beneficial technologies, the specification for the technology will be advertised as a call for commercial companies to develop. All suggestions will be examined by the local specialists and citizens assemblies and the top three tech proposals will be selected for approval by the PTA.

KEY ASPECTS OF THIS FUTURE

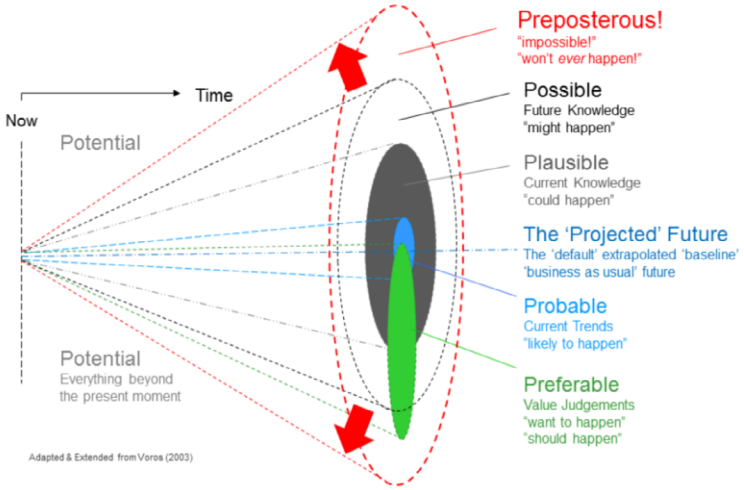
- The People's Technology Authority will be a global authority run by citizens across the world and meant to prioritize people's wellbeing and rights as well as the environmental issues at the core.
- Every technology will be examined through strict and thorough examination by the following expert groups: researchers, librarians, members of the public.
- Not every technological product or service should be developed.
- Tech companies will have to provide 50% tax on their profit to fund the initiatives that will help democratic societies to flourish.
- Bringing back the human to the different technologies and experiences we want to have, from culture, education, health and news.
- Prioritizing care, maintenance, and context over innovation, speed and scale.

FUTURES THINKING DON'T STOP THINKING ABOUT TOMORROW

This chapter explores the concept of futures thinking in more depth, and shares tools and methods available to libraries. It is intended as a gateway, with the goal of helping libraries globally engage more clearly, confidently and effectively with futures.

The underlying theme of the Trend Report is that libraries should feel both confident and able to look into the future, take steps to maximise their readiness for it, and indeed look to shape it in line with their values and mission. It explicitly does not look to make predictions, but rather to underline that multiple futures are possible. This places the Report in a much wider current of books, articles and thinking about how we deal with the future – or futures.

The 's' in futures is important here. Unlike forecasting, futures explicitly recognises that trying to pick a single version of the future can be a poor strategy. Planning for just one eventuality can leave us vulnerable when something else happens, over-estimating the level of confidence we have in the world. It reflects in particular the idea of a 'VUCA' (volatile, uncertain, complex, ambiguous) world where clear prediction is impossible over any meaningful period of time[1].



Source: Voros, Joseph (2017)

[1] Pearson TalentLens (2015), Critical thinkers will prevail in a VUCA world, People Matters, 22 January 2025, https://www.peoplematters.in/article/leadership/critical-thinkers-will-prevail-vuca-world-10446

FUTURES THINKING DON'T STOP THINKING ABOUT TOMORROW

A regular reference is to the idea of a 'futures cone'. At the centre is the projected future – effectively a continuation of today. There are however a wider group of futures considered probable, and still more that are 'plausible' or 'possible'. Beyond this there can also be 'proposterous' futures – a point we will return to later[2].

The goal of futures as an area of work in general (as covered in more depth in the next section) is to enable a structured, effective and empowering approach to thinking and planning for uncertainty. Through providing clarity, it should allow the right mix of courage and humility to maximise readiness[3].

The approach taken by the Trend Report follows the broad structure of many recommended approaches to futures – identifying trends on the basis of evidence, and then building different probable or plausible scenarios for the future. Yet within this general structure, there are many other approaches possible, as well as parallel models of how to think about futures.

Where this chapter aims to add value is by taking a further step back, and looking across the different approaches to futures in general. In this, it will draw on both private and public sector resources, offering first an overview of some of the reasoning for thinking about futures at all, and then different tools and methods for doing this.

Importantly, it is not practical or useful to try and do everything mentioned here, but hopefully you will take inspiration or ideas that you can apply in your own setting. To help with this, the chapter provides links to additional resources if you want to explore further, in particular models for workshops or similar sessions with colleagues and others.

It starts with an overview of commentary on how we tend to think (or not think) about the future currently, before the application of futures thinking, and the risks of inaction. It then explores the different approaches for gathering intelligence about the future – both in terms of the different types of trends, drivers and assumptions that shape it, and how to bring these together into different images (or scenarios of the future).

[2] Voros, Joseph (2017), The futures cone: use and history, 24 February 2017, https://thevoroscope.com/2017/02/24/the-futures-cone-use-and-history/

[3] McTavish, Gavin, Billa, Gopi (2020), COVID-19: Confronting uncertainty through & beyond the crisis, 4 March 2020, Deloitte, https://www.deloitte.com/global/en/issues/resilience/covid-19-confronting-uncertainty-through-beyond-the-crisis.html

FUTURES THINKING DON'T STOP THINKING ABOUT TOMORROW

Finally, it looks at how to use the information gathered in order to inform decision-making about the future of libraries, before concluding with references to how other organisations are integrating futures into their work.

This is not the first time of course that the idea of futures has been explored by library organisations. The American Library Association's Centre for the Future of Libraries ran in the late 2010s[4], while CILIP, the UK Library Association, launched the Future Libraries project in 2024[5] while IFLA's latest Trend Report was still being researched. Both will be referred to in this report as appropriate.

[4] American Library Association (n.d.), Centre for the Future of Libraries, https://www.ala.org/future

[5] CILIP – the UK Library Association (2024), Future Libraries, https://www.cilip.org.uk/page/future-libraries

FUTURES THINKING
THE FUTURE, TODAY

To start, it is worth reflecting on where the idea of Futures as a discipline comes from, and how this relates to what we know about how we as humans think about the future in general. While the approaches taken can seem to contradict, they all lead in the direction of making futures thinking more explicit and more central to how we live.

Starting with how people in general process the future, on the one hand there is an argument that the answer is 'not very well'. The suggestion is that there is a natural human bias towards assuming that the status quo will continue, with perhaps only limited glimpses into the future, generally based on past experience. It is noted that the part of the brain that thinks about the future is also the one that thinks about the past, and that we can also struggle to articulate coherent futures[6].

Additional drivers behind this tendency may well include pessimism in many soceities around where the world is going, leading to a tendency to fold back in on ourselves and resist or deny change that we assume is going to be bad. Another could well simply be the pace of change, leaving many feeling lost and keen to hold onto old (apparent) certainties[7].

The risk of course here is that by not thinking about the future at all, we risk remaining static, failing to seize opportunities, or react in time to threats that may be coming our way. We also risk discounting the future, leaving problems for future generations to resolve.

At the other end of the scale, UNESCO's work on Futures Literacy brings out strongly the idea that we are in fact always thinking about the future. Every decision we make will only reveal its consequences after being taken, and so is based on some sort of assumption about how things will be. Indeed, this approach stresses the need not so much to create skills in the first place, but rather better to harness and direct them, helping people to be far more conscious about how they reflect on the future, and use this proactively. This in turn can be empowering, giving people at stronger sense of agency over their own lives and environments. Importantly, this is also presented as allowing us a stronger understanding of the present also.

[6] Poussa, Lilli, Lähdemäki-Pekkinen, Jenna, Ikäheimo, Hannu-Pekka, Dufva, Mikko (2021), Futures Frequency Workshop Facilitators' Manual, Sitra, https://www.sitra.fi/en/publications/futures-frequency-workshop-facilitators-handbook/

[7] Idem

At the same time, these two approaches are less contradictory than might appear. Working as if the status quo will continue reflects assumptions about the future, including taking things for granted which really should not be taken for granted. This is not just about 'black swan' events which could not have been predicted, or even ones that were seen as having a low probability (such as the Pandemic), but a look at history underlines that permanence is often an illusion.

Another approach comes from a recognition that we also differ in our basic attitudes, and that at heart there are four archetypes, or general models or narratives about the world of tomorrow[8]. These are the assumption that things stay more or less as they are now (with potential decline), that they get incrementally better, a more catastrophic outlook, and transformational one[9].

We can also assess people's attitudes towards the future using the Polak Matrix[10], where people place themselves according to how optimistic or pessimistic they are about the future, and how far we feel like we can influence them.

This can be used as an exercise in workshops, helping to class people into the powerless (the world is getting worse and we can do nothing about it), realists (the world is getting worse, but we can at least mitigate this), the passive (who are optimistic, and just ready to sit back) and the powerful (who are both optimistic and active in shaping the future.

This can help people gain an insight into their own perception of the future and how this may contrast with that of other people, as well as illustrating the assumptions that shape how people view the future, and so make decisions and choices today.

In short, we are likely always taking decisions about the future, although often this happens unconsciously, or at least is based on a set of assumptions or pre-conceptions that can limit our vision.

But what about conscious efforts to deal with an unpredictable future? The idea that Futures (with an 's') can be a distinct area of work arguably comes from two areas far from the library field itself – military and political strategy (via the work of the Rand Corporation in the post-war period), and from the fossil fuel sector, where Shell introduced new ways of thinking and working in the 70s.

[8] These are based on the work of James Dator: Bengston, David N. (2017), Ten Principles for Thinking about the Future: a Primer for Environmental Professionals, US Department of Agriculture, https://www.fs.usda.gov/nrs/pubs/gtr/gtr_nrs175.pdf
[9] Tuomo Kuosa at Futures Platform sets out a model with 9 different 'lenses' about the future, based on the work of Inayatullah and Micic – Kuosa, Tuomo (2018), Which way to you think the future gets formed?, https://www.futuresplatform.com/blog/which-way-do-you-think-future-gets-formed
[10] Poussa et al, idem

These were distinguished by a desire to focus on the longer term, as well as the acceptance that there is more than one possible future. This stands in contrast to approaches which emphasise the near term (the next few years), and which seek to make single predictions about this.

Notably also, the actors involved in doing this are 'elite' - those who are already the richest and most powerful. They are the ones who logically have both most resource and flexibility to spend time looking into the future (and then to take action to prepare for this), as well as most potentially to lose if it doesn't go their way.

In other words, one key root of Futures as a discipline is that this has the potential to offer a competitive advantage to those who make use of it, helping them build (or maintain) their power compared to less well-prepared peers3.

Closely linked to this is the concern that when only certain actors – typically those already with power and resources – are the ones looking to understand and shape the future, this implies that others are not.

These others represent the majority of the population, including those who might have an interest in a future marked by different power structures and distributions of resources than that in place today. Some even talk of the future being colonised, in much the same way as European and other powers sought to colonise other parts of the world in previous centuries[11].

As such, there is an important equity angle to Futures work, especially that based on promoting Participatory Futures[12]. Indeed, it is argued, a failure to include more people in Futures work is not just an equity problem in terms of some developing useful skills and not others[13], but is arguably an effectiveness problem also. Limiting reflection on futures to a small group implies missing out on key perspectives and insights, as well as narrower ownership of the results[14].

In sum, there is a risk that conscious thinking about the future is still far too limited to an elite, while others simply assume that the status quo will continue. This brings costs in terms of equity, effectiveness, sustainability and wellbeing.

[11] Nicklas Larsen, Jeanette Kaeseler Mortensen and Riel Miller (2020), What is 'Futures Literacy' and Why Is It Important?, Medium, 11 February 2020, https://medium.com/copenhagen-institute-for-futures-studies/what-is-futures-literacy-and-why-is-it-important-a27f24b983d8

[12] See Nesta (2019), Our futures: by the people for the people, https://media.nesta.org.uk/documents/Our_futures_by_the_people_for_the_people_WEB_v5.pdf

[13] Miller, Riel (2010), Futures Literacy- Embracing Complexity and Using the Future, Ethos 10(10), 23-28, October 2010, https://www.researchgate.net/publication/272739756_Futures_Literacy_-_Embracing_Complexity_and_Using_the_Future

[14] The same can arguably be true even inside organisations – for example, government foresight can be better when it engages a much wider range of officials. See Sandal, Gökce (n.d.), Foresight in Government: How to Build In-House Foresight Capabilities in Public Organizations, Futures Platform, https://www.futuresplatform.com/blog/practicing-foresight-government-how-build-house-foresight-capabilities-public-organizations

While much work by futures professionals today is focused on how to support the private sector in its own preparation for what is to come (in the end, this work needs to be paid for somehow), there are many resources available – from private and public actors alike – to help support futures thinking more broadly.

The next two sections – the main part of this chapter – draw together this knowledge in order to ask what tools there are to help us build an idea of futures, and secondly, what techniques we can use to understand their implications on libraries and the communities they serve and use these to take better decisions. This roughly follows the distinction between 'foresight' and 'strategic foresight'[15].

The first one therefore looks at 'foresight'. In line with the point above about a focus on futures with an 's', this explicitly differentiates itself from 'forecasting', which is far more about prediction. This brings together a variety of techniques and approaches, ranging from ones strongly based on data and quantitative analysis to far more qualitative – and even imaginative – outcomes.

The first step of course in carrying out work in this space is to identify the question you want to explore. In the case of the Trend Report, the choice was to look at the future (or futures) of knowledge and information. As explained in the introduction, this explicitly aimed to allow a broader focus than one looking only at libraries, but also to be sufficiently specific to be meaningful.

However, you may want to define things differently – for example the future of research, of communities, of learning or similar. Guidance here tends to recommend making sure not to restrict work unnecessarily – for example a look at the future of the car may well miss out on relevant issues that can be uncovered if we look at the future of mobility. It is also important to underline that typically efforts to explore futures look at least 10-15 years into the future.

Once you have defined your theme, the next step is to gather 'futures intelligence'. Using the Johari Window (made famous by Donald Rumsfeld), we can divide information about the future into four categories – known knowns, known unknowns, unknown knowns, and unknown unknowns[16]. The following sections explore these, going from the most concrete and based in quantitative evidence to the more speculative.

[15] European Commission (n.d.), Strategic Foresight, https://commission.europa.eu/strategy-and-policy/strategic-foresight_en
[16] Sandal, Gökce, (n.d.), Four types of futures intelligence and how to obtain them, Futures Platform, https://www.futuresplatform.com/blog/four-types-futures-intelligence-and-how-obtain-them

Source: Futures Platform

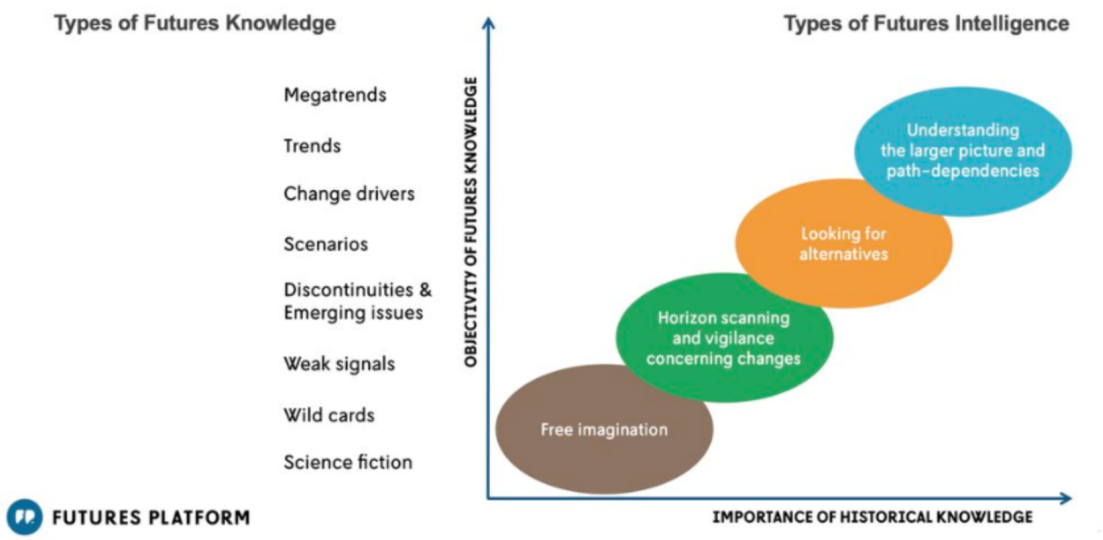


Figure: Types of Futures Knowledge and Intelligence © Futures Platform 2020

Starting with 'known knowns', the broadest type of force potentially shaping the future are megatrends. These are often based on a mixture of data and analytics, as well as wider phenomena which are widely recognised and documented. These tend to be general, with implications across a wide range of questions, and run over the longer term. Issues such as demographic change, climate change and globalisation fall into this category.

In some cases, there is hard data, for example around climate change or sea-level rise. While there will always be some variation and unexpected elements, we can determine some elements of the future relatively clearly, at least for the years to come.

This of course becomes harder the further we look into the future. Elsewhere, we rely more on expert opinion and insight.

Underneath that, there are also more traditional 'trends'. These are also based on multiple sources of evidence, and point to an area of change in our world over time. They are usually more sector specific than megatrends, and maybe last for a shorter period, but can also be connected to megatrends.

Examples here include the seven trends highlighted in this Trend Report. Some guides also talk about sub-trends – developments which are more specific still, and which may underpin wider trends.

MEGATRENDS, TRENDS AND SIGNALS

Importantly, as Futures Platform points out, trends have a lifecycle that can be shaped like an S-curve. While megatrends may operate over a longer period, other trends may start slowly, before entering into the wider imagination and becoming a powerful force in shaping behaviours. However, at some point, they may be overtaken by other events or have had all the impact they can have and decline into irrelevance.

An example could be rise of physical digital media (CDs, CD-ROMs, DVDs). They initially took off due to their ability to hold more information in a much smaller space, and for a while dominated markets. However, they ended up being overtaken by purely digital market, and indeed have sometimes been outlasted by technologies they were supposed to replace (such as vinyl).

In addition, some guides also talk about change drivers alongside megatrends and trends. These are phenomena that we know about in general – such as government regulation or technological change – and which can have a significant (disruptive) impact on societies and systems. Nonetheless, their consequences nonetheless may not be well known[17].

Not all potential trends become trends of course. There are many ideas, phenomena or activities that have the potential to become formative influences on our lives, but may simply never catch on and spread[18]. However, some will do so and could indeed be determining forces. These are known as 'signals', and are a major focus for people working on futures. Arguably, these are examples of 'unknown knowns' – elements of the future that are already with us, but which currently are under-recognised.

There is most focus on 'weak signals' - potential trends which are still only recognised by a small group of people (think of the code-breaking computers of World War 2, the first internet connecting universities, or the initial work within Apple to create the iPhone). When these become better known, they become 'strong signals'. Some approaches to futures – such as the Horizons model in Canada – make the additional step of looking at how signals together can provide the basis for insights – understandings about goals, motivations or wider trends[19].

[17] For example, see Government Office for Science, ibid, Policy Horizons Canada (2018), Module 5: Change drivers, https://horizons.service.canada.ca/en/our-work/learning-materials/foresight-training-manual-module-5-change-drivers/index.shtml

[18] Kuosa, Tuomo, Sandal, Gökce (n.d.), S-Curve Analysis: Identifying when an emerging change signal becomes a viable opportunity, Futures Platform https://www.futuresplatform.com/blog/s-curve-analysis-foresight. See also Kuosa, Tuomo (n.d.), 3 common challenges in traditional foresight work, Futures Platform, https://www.futuresplatform.com/blog/3-common-challenges-traditional-foresight-work

[19] See Government Office for Science, idem

As underlined, there is no certainty about how far these signals will go, but given their potential for impact, they are a key part of foresight work, and a number of organisations active in the space actively maintain banks of examples of weak signals (alongside trends and megatrends) in order to inform their work.

In terms of how to keep track of Trends, a good starting point is this Trend Report, which highlights phenomena such as recognition of the value of making more voices heard, or the decline of local media. You can also look for examples in public collections, many of which offer 'trend cards'. Megatrend reports are quite common, while at the beginning of the year many magazines or newspapers produce articles sharing ideas and examples of these.

Alternatively, you can look to do your own research – monitoring the media, academic publications, social media, data and statistics and more, or even asking for expert inputs – for example using the Delphi method[20] or the 7 Questions model[21].

Importantly, in this, you should look to draw on a wide range of sources and disciplines. If we remain just within our own field, we are likely to miss key ideas and views. For example, sociology and urban planning journals will be highly relevant for public libraries, while work on digital inclusion may require insights from all of technologists, educators, economists and more. You can also look to structure your work here by working by sub-categories – usually a combination of some or all of political, social, economic, environmental, legal, values, technological, cultural or others. This provides a helpful way of checking that you haven't missed anything[22].

In addition, most guides will underline that searching for trends should be a regular activity, not just done once every few years when an organisation updates its strategy for example. It is often recommended to build the capacity and infrastructures to carry out monitoring constantly, or at least every few months. This is another reason why public collections of trends can be so useful.

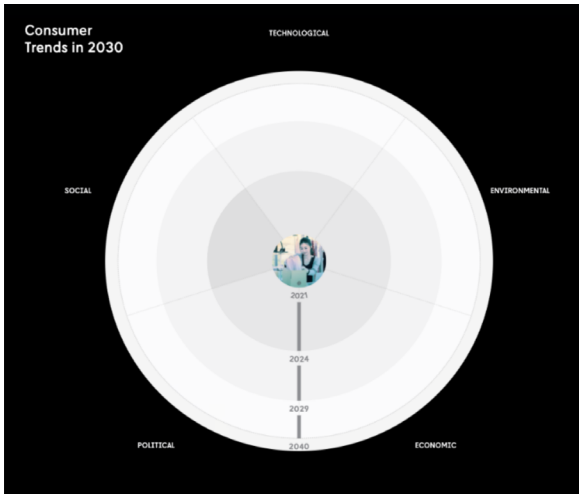
[20] Government Office for Science (2014), Futures Toolkit for policy-makers and analysts, https://www.gov.uk/government/publications/futures-toolkit-for-policy-makers-and-analysts/the-futures-toolkit-html
[21] Idem
[22] See, for example, Grabtchak, Anna (n.d.), How to Do Horizon Scanning: A Step-by-Step Guide, Futures Platform, https://www.futuresplatform.com/blog/how-to-horizon-scanning-guideline

FUTURES THINKING
FROM TRENDS TO UNCERTAINTIES

A second point is that a trend (or signal or insight) is not a certainty. Indeed, some bring uncertainty – not just about how far they will go, but also around the direction that they could take. For example, a loss of trust in central government could lead to a rise in populism, calls for a smaller state, or a greater focus on local and regional government as being closer to people. Similarly, the decline of local media could lead to more citizen journalism, or simply to the emergence of news deserts. An extra dimension is added when we look at how different trends could interact with each other.

One possible next step is then to explore how far we can define 'axes of uncertainty', based around individual trends/signals/insights or combinations of these[23].

When working with one trend, one way of exploring these is to work with a 'Futures Wheel' or radar[24]. Write your trend in the middle of a circle, and then draw three further circles around this, each larger than the last. You can also divide the circle into social, technological, economic, environmental, political, legal, values, cultural or other segments.



Source: Futures Platform

In the first circle, you can brainstorm different types of impact. For example, an aging population may have the political impact of tending to deliver more right-wing governments but also stronger support for spending on pensions and healthcare (political), cause stress on public spending as numbers of working age people as a share of the population fall, but also greater focus on supporting the interests of pension funds (economic), lead to a stronger emphasis on adaptive technologies (technological), lead to a rise in loneliness and people seeking individual or sheltered housing (social) etc.

[23] For example, see the list established in CILIP's work on Future Libraries, CILIP (2024), Future libraries, https://www.cilip.org.uk/page/future-libraries
[24] Sitra (2019), The Futures Wheel, https://www.sitra.fi/en/cases/the-futures-wheel/

In the second circle, you can set out the secondary impacts of these. To take one example, a rise in right-wing governments and pressure to spend on pensions and health may lead to a deprioritisation of other areas of spending. Finally, in the third circle, you can add in the tertiary impacts. You may have many ideas at this point, and so it is worth a discussion in order to prioritise the most powerful consequences of a trend, as well as how they may interact. This will likely lead you to a range of different possible direction in which a trend could take you, and so one or more axes of uncertainty.

Alternatively, you can create a grid where you cross the different trends with which you are working, and then note down how they may interact.

Are they likely to reinforce each other (either positively or negatively), cancel each other out, or do they simply make everything more complex? What issues and uncertainties does this highlight for the future?

For example, we might see that a decline in trust in government might actually be counteracted by an increasing focus on building information literacy skills, as people become more comfortable with complexity and ambiguity, and feel more confident in taking nuanced positions.

Accelerating climate change could worsen the digital divide by damaging internet infrastructure in areas where there is little redundancy or resilience. Stronger digital skills could work hand in hand with stronger recognition of the value of diverse voices by ensuring that previously underrepresented groups are better able to represent themselves.

Looking at where there are particularly strong connections can also allow us to develop axes of uncertainty – for example between a more or less inclusive digital society.

[23] For example, see the list established in CILIP's work on Future Libraries, CILIP (2024), Future libraries, https://www.cilip.org.uk/page/future-libraries
[24] Sitra (2019), The Futures Wheel, https://www.sitra.fi/en/cases/the-futures-wheel/

FUTURES THINKING

PICTURING FUTURES: SCENARIOS

A regular feature of work around futures is the development of scenarios – these are effectively stories about the future (either as a simple description of the state of the future, or also including a narrative about how we got to that point[25]). They can be very powerful as a way of testing strategies and policies – something that we will address in more depth in the following section. They are also a way of dealing with 'known unknowns' by at least presenting a way to explore different options.

There are various ways of creating scenarios, but a popular and simple one is to take two axes of uncertainty in order to create a 2x2 table. This leads to four different quadrants, which in turn provide the basis for developing a scenario. For example:

- Axis 1: a more or less inclusive digital society (in terms of meaningful connectivity)
- Axis 2: a breakdown of trust versus a reinforcement of trust

This gives us four bases for scenarios:

1. A society where everyone is connected, but there is very little trust. This could encourage the spread of misinformation and conspiracies, as well as under-use of the potential that connectivity brings.

2. A society where there is both low connectivity and little trust. This could end up being a driver of inequality as commercial and political elites can make maximum use of the potential of technology, but may lead to a more chaotic political situation.

3. A society where everyone is connected and there is strong trust. This would likely be the optimal situation, with a full possibility to draw on the internet both to advance cooperative activities but also to engage constructively in better and more responsive policy-making.

4. A society where few are connected, but there is strong trust. This would be a world where stability may go hand-in-hand with very slow development or innovation, and certainly less engagement in community projects or democratic governance than might be desirable.

[25] Policy Horizons Canada (2018), Module 6: Scenarios and Results, https://horizons.service.canada.ca/en/our-work/learning-materials/foresight-training-manual-module-6-scenarios-and-results/index.shtml

PICTURING FUTURES: SCENARIOS

Before going further, it is worth a quick sense check to assess whether the scenarios here represent at least plausible futures. While 'preposterous' futures can have a useful role in challenging assumptions (see below), they may be less useful for other work. If your scenario here feels too far-fetched, look at how you can make it more plausible.

It is then a case of developing these ideas into fuller scenario stories, along the lines of those already shared in the Trend Report as a whole. One way of doing this is simply through imagination. Available guides often talk about just closing your eyes (or encouraging others to do so), and trying to picture what this future looks like. Well used examples – such as preparing a magazine cover, imagining a speech, can also work. It may be worth working with artists or other creators here.

More systematic ways of digging into what a scenario might look like include a version of the **futures wheel/radar** set out earlier (but in this case thinking about what such a scenario might mean for politics, society, the economy etc). Another is to take the position of **different stakeholders** in this potential future, and think through how they might experience this – what would a day in the life look like?

A further approach is '**Verge**', where we explore how we carry out six different activities in a given scenario – defining (how we define the world around us), connecting (what tech do we use and how in order to connect people, places and things), creating (how do we create goods and services), relating (how do we link with other people), consuming (how do we consume goods and services), and destroy (how and why we destroy value[26]).

We can also use **layered analysis**, a technique proposed by UNESCO[27] in order to interrogate what underpins different ideas about the future. This starts with a particular future, but then asks what actors are helping to make this future like it is, what structures underpin this, and finally, what myths and metaphors lie beneath this all.

For example, a future of intense urban congestion is going to be driven by drivers and car manufacturers. The structures that make this happen could like to the way that cities themselves are organised, as well as how we organise the economy and other activities (in particular in areas where physical presence is optional), and inadequate public transport. The underlying myths and metaphors could focus on the image of car-ownership as a symbol of success (and indeed capitalism/private ownership as a goal), or the idea that the American model of the city is desirable.

[26] Roche, José Manuel (2019) The Future Is Ours: Strategic Foresight toolkit – making better decisions, Save the Children, https://resourcecentre.savethechildren.net/pdf/strategic_foresight_toolkit_online.pdf/
[27] UNESCO, Prince Mohammed Bin Fahd Centre for Futuristic Studies (2023), Futures literacy laboratory playbook: an essentials guide for co-designing a lab to explore how and why we anticipate, https://unesdoc.unesco.org/ark:/48223/pf0000385485

This approach can also help in imagining how the world might have got to the situation we were in – how did particular myths and metaphors shape structures which in turn shape individual behaviours?

Similarly, '**backcasting**' (as opposed to forecasting) offers a technique where you take a given future at a specific time in the future, and then think what needed to be in place, for example, 5 years earlier in order for that future to come to pass. You then move back a further five years, repeating the process until we arrive at the present day[28]. This can also be a helpful tool (when working with desired futures) to identify which factors you can and cannot control, and what you can do about these.

It is also possible to use the '**3 Horizons**' technique to explore the potential process required to reach a given future. This calls on participants to set down what trends and characteristics mark the present day (Horizon 1) and the imagined future (Horizon 3). The work then focuses on the intervening time – Horizon 2 – what needs to happen to get from Horizon 1 to Horizon 3, including which present-day trends need to strengthen or weaken, plus which new elements are necessary[29].

All of these techniques can help move from the core points to a fully worked out scenario that you can work with in the next main section. At the same time, there are other ways of developing scenarios, covered below.

[28] See Government Office for Science, ibid
[29] See Government Office for Science, ibid

FUTURES THINKING
ARCHETYPAL FUTURES

Another way of exploring futures is to go back to the archetypes mentioned in the introduction – business as usual, decline, incremental progress and transformational change (or indeed the nine lenses referred to in the relevant footnote). You can then take a particular trend or driver of change, from your point of view, and see how this might evolve under each of the different archetypes[30].

For example, an ageing population under business as usual will simply continue to age, with associated issues around pressure on health services and concerns about public finances breaking even. A more optimistic scenario might see advances in healthcare – for example treatments for degenerative conditions such as Alzheimer's – allowing people to stay fit for longer, and so work for longer (if they wish), as well as to take part in all parts of life.

Meanwhile, a negative scenario could see a much more rapid collapse of government budgets, with pensions eliminated and more and more older people left to look after themselves. Finally, a transformational scenario could see a redefinition of our relationship with age, with technology in particular allowing longer, healthier and happier working lives, and for example job-shares between younger and older people.

A similar way of developing futures is to replace the archetypes (which tend to focus more on end-results) with different overall narratives of how the world could change (which focus more on pathways). This allows us to develop a Futures Table, as promoted by Futures Platform in Finland. With this you can combine different eventualities for different trends or change drivers together in order to build a set of stories[31].

A further helpful tool when exploring potential scenarios is the Futures Triangle proposed by Sohail Inayatullah[32]. This suggests that futures will be shaped by a combination of the pull of the future (what is desired – see below), the push of the present (the trends we currently see, as well as the decisions we take now), and the weight of the past (the dependencies, attitudes and assumptions that can hold us back).

To use this, you can set up a triangle, with the future, present and past each in one corner, and then start mapping which factors contribute to each. Once these are noted, you can then start thinking about how different combinations might lead the future of a particular issue in different directions, once again allowing you to create a set of possible scenarios.

[31] Kuosa, Tuomo (n.d.), Futures Table – A Powerful Scenario Planning Tool, Futures Platform, https://www.futuresplatform.com/blog/futures-table-scenario-planning-tool
[32] Kuosa, Tuomo (n.d.) How Can We Anticipate Plausible Futures?, Futures Platform, https://www.futuresplatform.com/blog/how-can-we-predict-plausible-futures

FUTURES THINKING

TAKING TODAY AS A STARTING POINT: BRANCH ANALYSIS AND SYSTEMS

A different approach to imagining potential scenarios for the future starts rather with the present day. **Branch analysis** works by defining different potential directions of travel, as well as events or other moments which may have a determining impact. For example, in addition to longer term trends (such as technological development), you also have moments such as elections, the need to renegotiate an agreement, or even a major anniversary, which can change the way things are going[33].

The result of this is a diagram that looks a little like the branches or roots of a tree, at the end of which you end up with a different potential scenario for the future. You can then follow the same process as for the scenarios above, although with the added advantage that the branch analysis already gives an idea of how the scenario came about.

A more complex, but powerful approach, is to start by collectively defining **systems** as they are today. Policy Horizons Canada offers rich guidance on how to do this. According to this[34], the process of defining a system starts by listing different actors and institutions related to a particular issue, and in parallel the different processes involved.

Once the most important elements and processes are agreed on, it then moves onto exploring (potential) relationships, and finally a full system map which helps explain how – today at least – people and institutions achieve their goals. This work can notably offer a good way of building a shared understanding of the current state of the world in our area of focus (combined with work around identifying assumptions above).

Once this is done, it becomes possible to look at how different trends and change drivers might affect each element of the system, and then follow the connections between them in order to assess what different final results there might be. As has already been noted in the case of trends in general, the combined effect of different drivers on systems may be to intensify changes, to cancel effects out, or simply to make things less certain and more complex.

[34] Policy Horizons Canada (n.d.), Foresight Training Manual 4: System Mapping, https://horizons.service.canada.ca/en/our-work/learning-materials/foresight-training-manual-module-4-system-mapping/index.shtml.

VISIONING AND IMAGINING

In contrast both to branch analysis (which starts in the present) and to models based on one or more established trends, an alternative model is to start by imagining more freely the sort of future that we might actually want. While this may seem less realistic, the 'pull of the future' is recognised as a factor in how our world evolves in the Futures Triangle model mentioned above, and indeed the theme that we can influence the future in a desirable direction is a theme across the field.

Practically, using the chosen question as a focus, groups can explore ideas about what a desirable future looks like. This is known as **visioning** and can also provide an opportunity to start a conversation between participants in a workshop about the differences between their ideal futures[35]. To make it easier, some suggest taking something that is seen as working well today as a starting point for this reflection[36].

A more guided – and playful – approach to defining ideal futures can come from games, such as Nesta's Cards for the Future[37], and Sitra's Cards for Hope[38]. Both give participants a set of subjects and themes, and ask them to compete to come up with the most inspiring future.

A more creative approach can be to ask participants to develop a newspaper front page (as mentioned above), or even to invent an object of the future which can be promoted at a 'Futures Bazaar', as developed by the BBC[39].

Imagination can also help us put together an idea of a world shaped by something highly unexpected – a wildcard event. Indeed, the games mentioned to bring this in, but idea can also apply in scenario development more broadly. Indeed, in the light of the COVID-19 pandemic, we are probably now in a time where there is greater readiness to accept that something that seems highly unlikely could still happen, with massive consequences[40].

There is also the idea of a 'preposterous' future – something that may seem absurd today, but allows us to think more critically about the assumptions we make. This may even be funny or provocative, or seem like something from a science fiction writer, but they can help put our other ideas about plausible futures in a useful perspective. Indeed, when we are trying to explore the fourth quadrant of the Johori window – the unknown unknowns – the input of artists and others may be the best way forwards.

Once again, these can all serve to define a scenario of the future that can be combined with others subsequently.

[35] Sitra offers a useful tool for thinking about building a utopia – Sitra (2020), The building blocks of utopias, https://www.sitra.fi/en/cases/the-building-blocks-of-utopias/
[36] See Government Office for Science, ibid, Poussa et al, idem
[37] Nesta (n.d.) Cards for the Future, https://media.nesta.org.uk/documents/Cards_for_the_future_Print_and_play.pdf
[38] Sitra (n.d.), Cards of Hope, https://www.sitra.fi/en/digital-cards-of-hope/
[39] BBC (n.d.), Futures Bazaar, https://www.bbc.com/gel/features/futures-bazaar-toolkit
[40] Ota, Shiori, Mäki-Teeri, Marianna (n.d.), Wild cards and science fiction: Free imagination, Futures Platform, https://www.futuresplatform.com/blog/wild-cards-and-science-fiction

Finally in this section on how we can create ideas about futures, there are approaches which focus much less on discernable trends and phenomena and more on the assumptions that we make about the world. This goes back to the idea that we tend very much still to focus on a future defined by our assumptions today – i.e. the projected future – and the concern that such assumptions may allow us to develop blind-spots, or be held back by the weight of the past. As such, the idea of challenging assumptions appears to some extent in almost all approaches.

UNESCO's approach to futures literacy – through its Futures Literacy Lab – emphasises this particularly strongly, firstly using the layered analysis approach mentioned above to make explicit the 'myths and metaphors' that lie beneath the futures that we can imagine or even desire[41].

The UNESCO Futures Lab model asks participants to imagine realistic and preferred futures, and use layered analysis to identify the assumptions behind this clearly[42]. It then confronts participants with a 'reframing story', where one or more underlying assumptions have been reversed and a narrative about the resulting world is provided. Participants are then asked to carry out 'reversed layered analysis', starting with these very different myths and metaphors and identifying what this means for structures, actors and ultimately behaviours.

Policy Horizons in Canada also gives strong consideration to assumptions, providing guidance about how to go about identifying which ones currently exist (for example through interrogating media, speeches and more), and then encouraging participants in workshops themselves to think about what could happen when these are removed, or even reversed[43]. In particular, it suggests that it is worth looking at which assumptions really do make sense, and which ones may need to be revised or even dropped altogether.

In summary, there are a rich variety of ways of thinking about potential futures, from those which are more grounded in (quantitative) evidence to those coming from pure imagination. Some take the present day as a starting point, others look back from the future, and others still aim to 'come out of nowhere' or are developed in opposition to prevailing assumptions and ideas.

The next section looks to take these ideas, and apply them in thinking about what the future may mean for libraries – and what we can do with it.

[41] To note, this also maps closely to the 'Levels of Change' model used by Sitra – Sitra (2020), Levels of change, https://www.sitra.fi/en/cases/levels-of-change/
[42] UNESCO, Prince Mohammed Bin Fahd Centre for Futuristic Studies, ibid
[43] Policy Horizons Canada, (n.d.), Foresight Training Manual 2: Assumptions, https://horizons.service.canada.ca/en/our-work/learning-materials/foresight-training-manual-module-2-assumptions/index.shtml

APPLYING THE FUTURE

Having built up a bank of futures intelligence using one or more of the techniques set out about, the final step is to make use of this to inform decision-making in libraries. By this point – too – you should hopefully also be much more aware of the types of assumption that you and others are making today, and arguably why things are as they are now.

A first step is to be clear about what we are applying futures to. To some extent, it is of course useful simply to have an idea of potential futures in order to be more humble and prepared in our work in general. UNESCO's goal is very explicitly about the value of the process in raising confidence and sharing skills among participants which can then be applied subsequently to more specific challenges. Save the Children also looks to build general skills and reflexes.

Elsewhere, the guide prepared by the UK government is much more about using futures to evaluate different policy choices, while Futures Platform's focuses on the role of futures in shaping business strategy. As highlighted above, Policy Horizons Canada looks primarily at the impact of futures on systems.

In the case of libraries, all of these overall areas of focus may be valid. As much as any other community, building skills to think about futures not only means that there are more people ready to take part in planning, but also brings benefits in terms of agency and wellbeing, as highlighted above.

It can also be valid to apply futures thinking to the systems in which we operate – be they focused on education, research, communication, culture, community or any other relevant topic. But we can also directly use them as a means of testing our plans and ideas – and the assumptions that underlie them – in order to check how resilient they are.

Starting with a focus on **systems**, to the extent that libraries, library and information workers, communities and library partners are included as elements in your system map, you may already be able to built up a picture of different futures from the work above. As different change drivers apply, libraries (as institutions embedded in their relevant communities) will almost certainly see changes in their relationships with others. More simply (and obviously), you can think directly about how different trends will affect libraries, but this comes with the risk of missing out on the interconnections that a systems approach brings, or the richness of using scenarios (as below).

You can also use **SWOT** (strengths, weaknesses, opportunities and threats) analyses. This can be done either by starting with the internal factors (i.e. the strengths and weaknesses of your libraries, or library field as a whole) and then how external factors (opportunities and threats – either from individual trends or change drivers, or from scenarios) will interact with these, or the other way around. The direction you choose (internal then external, or external then internal) may well shape the answers you arrive at – you may want to encourage different groups to take different approaches[44].

Once you have filled in ideas for the four categories, you can make connections. You will potentially arrive at both more positive things – strengths that allow you to seize opportunities and be resilient in the face of threats, but also weaknesses that prevent you from progressing or make a difficult situation worse.

A particular technique for which scenarios are useful is the **stress-testing** or **wind-tunnelling** of strategies and policies[45]. In this, you reflect on how effective your plans are likely to be under the different scenarios that you have set out. This is an exercise you can carry out alone, or by giving different scenarios to different groups. The same approach can also be used to test out core identified assumptions underlying your strategy.

The result of this should be that each element of a strategy or policy, or each individual assumption, can be judged as being either solid, dependent on what sort of future comes to happen, or being highly vulnerable. In some cases, you may not be certain under any scenario about the impact of the actions you take, but you can at least gain clarity around what the possibilities are.

These processes can be both comforting and challenging. In some cases, the steps you are planning – or the assumptions that they are based on – will turn out to be relevant or helpful whatever happens, and even help bring you closer to a desired future. But in others, planned actions and assumptions may turn out to be far less certain than had been though. Where there is a finding of dependence or vulnerability, then there can be a process of reassessment, with either amendments made in order to ensure greater resilience in the face of different futures, or a more fundamental rethink.

Importantly, as underlined by different guides, while this process be difficult at first, once it becomes more routine, it should also be easier. With new weak signals and trends appearing and disappearing all of the time, as well as events and changes of direction, leaving too long between applying futures thinking also reduces its usefulness.

This can, in turn, be the basis for much more solid, responsive, effective roadmaps which improve chances not just of surviving into the future, but shaping it.

[44] See Government Office for Science, ibid
[45] See Government Office for Science, ibid

CONCLUSION: THE FUTURE OF FUTURES IN LIBRARIES

The goal of this chapter has been to share more about futures thinking outside of the library field, in order to offer a menu of different techniques you could apply, both using the material included in the Trend Report, and your own thinking. Just as with the Report as a whole, it should be the start of conversation and reflection.

To get a sense of what a library field that has integrated futures thinking into its work might look like, we can take inspiration from other sectors and organisations. As mentioned at the beginning, both the American Library Association (ALA) and CILIP have launched their own work on futures. The ALA website brings together a valuable set of snapshots of trends and signals (both as cards and fuller briefs[46]), while CILIP's report offers a rich overview of trends and uncertainties, SWOT analysis related to different aspects of library operation, and four scenarios (close to the archetypal model set out above) which can be used for testing plans and ideas.

The CILIP report also usefully refers back to other futures studies focused on libraries[47].

Outside of libraries, some companies have internal foresight capacity (indeed, as mentioned, much modern thinking about foresight and futures comes from Shell). How much they focus on this varies however[48].

There are also think tanks explicitly focused on futures, which maintain banks of information about trends and signals – examples include Sitra[49] and Futures Platform[50] in Finland, and Nesta in the UK[51]. In addition, as already highlighted, the start of the year often sees magazines and newspapers reflect on trends and possibilities, many of which often look far beyond the coming 12 months, and which may be useful. Major consultancies also publish work on futures (Deloitte, Boston Consulting Group), as well as wider tools for thinking differently, although of course much of their work takes place directly with their clients.

[46] American Library Association (n.d.), Centre for the Future of Libraries, https://www.ala.org/future
[47] CILIP (2024), Future Libraries, https://www.cilip.org.uk/page/future-libraries. See in particular p8 of the report (Come Rain or Shine) for the list of other studies.
[48] For example, Futures Platform in Finland has even developed a model of futures thinking maturity, based on its experience – see Grabtchak, Anna, Stucki, Max, Mäki-Teeri, Marianna (n.d), Building Foresight Capabilities: Introducing Futures Platform's Foresight Maturity Model, Futures Platform, https://www.futuresplatform.com/blog/foresight-maturity-model-developing-foresight-capabilities
[49] Sitra (n.d.), Foresight, https://www.sitra.fi/en/themes/foresight-and-insight/
[50] Futures Platform, https://www.futuresplatform.com/
[51] Nesta (n.d.), Innovation methods – futures, https://www.nesta.org.uk/feature/innovation-methods/futurescoping/
[52] For example, Reeves, Martin, Legrand, Julien, Fuller, Jack, and Lotan, Hen (2019), Free your mind to free your strategy, BCG, 4 March 2019, https://www.bcg.com/publications/2019/free-up-your-mind-strategy

CONCLUSION: THE FUTURE OF FUTURES IN LIBRARIES

Governments and parliaments have also integrated futures thinking into their work, with some setting up dedicated units for foresight and futures. For example, one of the most comprehensive guides on futures comes from the UK Government Office for Science, which notably suggests a set of pathways which combine different futures methods in order to support effective policy-making[53]. The European Commission has also been very active, giving access to a wide range materials and tools which are primarily aimed at supporting their own decision-making, but which are fortunately also published openly[54]. They also organise regular workshops in order to build a habit of engaging in futures.

As another example, this chapter has also referred a number of times to the work of Policy Horizons Canada, which also both supports internal work, but also shares its guidance publicly[55]. It should be noted that a key role of these offices is often to build distributed capacity across departments and directorates.

As mentioned when discussing concerns about elitist futures, more useful results come from engaging a wider variety of people, especially those closer to the realities of policy delivery.

In addition, parliaments have also looked to build capacity to look at futures. For example, the Finnish Parliament has a Committee for the Future[56], and there are international meetings of parliamentary futures committees[57]. We are aware that parliamentary libraries are involved in this work, supporting the necessary background research.

While being realistic about what is possible in a field with a relatively small number of large institutions, and lots of small ones, it is nonetheless worth thinking about what we can do to improve the ability of the library field to work with futures.

[53] Government Office for Science (2024), Futures toolkit for policy-makers and analysts, https://www.gov.uk/government/publications/futures-toolkit-for-policy-makers-and-analysts/the-futures-toolkit-html

[54] European Commission (n.d.), Competence Centre on Foresight, https://knowledge4policy.ec.europa.eu/foresight_en . See also the European Strategy and Policy Analysis System's work on Horizon Scanning: https://espas.eu/horizon.html

[55] Policy Horizons Canada (n.d.), Resources, https://horizons.service.canada.ca/en/resources/

[56] Finnish Parliament (n.d.), Committee for the Future, https://www.eduskunta.fi/EN/valiokunnat/tulevaisuusvaliokunta/Pages/default.aspx

[57] Finnish Parliament (2022), Committees of the future to cooperate regularly, 14 October 2022, https://www.eduskunta.fi/EN/tiedotteet/Pages/The-Committees-of-the-Future-to-cooperate-regularly.aspx

CONCLUSION: THE FUTURE OF FUTURES IN LIBRARIES

Potential options to explore could include pooling intelligence about trends and signals (including drawing on existing literature in the library and information science field), holding regular discussions about potential trends and signals (including with external speakers), developing models for workshops and training (taking inspiration from what has already worked in the library field), and exploring how we can engage existing centres of reflection and excellence in futures to think about libraries.

In turn, there is also a strong potential for libraries to become not just venues but also leaders in promoting futures literacy in communities, championing participatory futures.

THE TREND REPORT WAYS TO PLAY

The Trend Report is there to be used. Above all, it is a tool, available to the library field, to stimulate discussions and planning which help us to be ready for whatever future lies ahead.

Crucially, therefore, we hope that reading it is just a first step. You are not just allowed, but in fact encouraged to take the content and use it in the way that works best for you in order to support your own work.

You know best what works – how within your culture and context you can best stimulate an inclusive, ambitious conversation about how to ready ourselves for the future. However, we are happy in this stage to offer some initial ideas about how you could use the Trend Report, through workshops, learning sessions, or simply for your own reflection or planning. These involve a greater or lesser amount of gamification, and all can be carried out either as an individual or as a group.

The suggestions here are, we would note, just a start. We look forward to developing further learning materials based on the Trend Report, through engagement with emerging leaders and experts in continued professional development and workplace learning. Look out for more on the Trend Report pages on our website, and follow the links in our section about Futures Thinking. And do share your own ideas!

WAYS TO PLAY TREND-SETTER

This exercise goes right back to the Trends set out in the literature review part of this report, and encourages fundamental reflection on the trends that shape the future of information from your perspective.

As you will see from the review, the authors worked with an exhaustive set of materials in order to develop the seven trends, and 29 sub-trends. However, the tradition of producing trend reports is not as strong in some parts of the world as in others. They also tend to focus on high-level trends, rather necessarily than those in play at the level of individual communities.

As such, one exercise you might wish to try out is to think about your own set of trends, either in addition to, or as an alternative to, the ones already presented in this report. In particular:

1. Think into the medium term (5-10 years ahead) – don't just focus on immediate priorities unless you can see them having a longer-term impact. Test your ideas to see if you think they could still be important into the future.

2. You can potentially start with a structure of different themes, such as economic, social, environmental, cultural, political or technological – this can make it easier to identify specific ideas.

3. Vary perspectives – you can think both about trends within the library field, but also about broader issues that affect society as a whole. You may want to 'take your librarian hat off' – that's to say think about these from the perspective of a citizen in general.

4. Think about alternatives – trends can go in different directions. Is there a 'best case' and a 'worst case' scenario? Which is more likely? What is likely to affect the course a trend takes?

5. You can express your trend in a similar format to the ones in the literature review (including the lists of positive and negative aspects), but you can also be more artistic! Design a library magazine cover or write a short article setting out what the future could look like for libraries if this trend comes to pass.

WAYS TO PLAY
2X2: EXPLORING THE INTERSECTION OF TRENDS

This exercise allows for a more discussion about what happens when different trends overlap with each other. This is one of the key themes in the 2024 Trend Report, understanding that no trends exist in isolation, and that the future will result from the interplay between them.

This builds on model provided in the scenario by Supriya Kulkarni, where she considers AI in particular, and what happens when the future is characterised by higher or lower levels of uptake of AI, and higher or lower levels of trust. While her scenario looks in detail at what happens where there is widespread uptake but low trust, it also points to alternative ones with different combinations. Another great example is the ARL/CNI initiative on Artificial Intelligence.

This can be a great tool for thinking through the ways that trends may combine, and coming up with ideas for different scenarios. To do this, you should:

1. Identify two trends that you want to work with. You can choose these from the set identified in the literature review (either the main trends or sub-trends, or use your own.

For example, you could choose Trend 1 (changing knowledge practices) and Trend 2 (technologies transforming societies)

2. For each of these, identify two directions – for example a positive and a negative, faster or slower progress, or any other contrasting pair.

For example, Trend 1 could go in the direction of a greater or lesser respect for diverse voices. Trend 2 could go in the direction of greater or lesser uptake of new ways of expressing and sharing information and stories.

3. Draw a graph with two axes. On the opposite ends of the horizontal axis, write down the two opposite directions in which your first trend might go. And on the opposite ends of the vertical access, write down the two opposite directions in which your second trend might go. Use the example in Supriya Kulkarni's scenario as a model.

4. Think – on your own or with a group – about what happens then in each of the four areas you now have.

For example, using the example above, you could look at how greater respect for diverse voices could combine with more ways of sharing stories, but also how lower respect combines with the endurance of more traditional ways of sharing information, as well as other combinations .

5. The resulting graph could be a great basis for developing scenarios, as well as reflecting on how libraries can be ready for each of the different combinations of trends set out.

WAYS TO PLAY SCENARIO PLANNER

This Trend Report already includes a diverse range of scenarios of what the world could look like in 5-10 years' time, as a means of making different futures feel more real, and so to make it easier to integrate them into our planning today.

However, these are just a selection, and as a global report, there are limits on how far the examples provided can be applicable in different contexts. You should certainly feel ready to adapt the scenarios already set out to make them more relevant to where you are working.

But you may also want to reflect on your own scenarios in order to support your planning! In doing so, you can use the model provided in the examples already in the report – the only rule is that you should aim to imagine as complete a view as possible of the information and knowledge environment in the future, bearing in mind that more than one trend is likely to be at work.

You should be imaginative, and not hesitate to invent specific events or developments that could happen, and have an impact on how we create, share, access and use information and knowledge.

To develop a scenario or scenarios, follow the steps below:

1. Start by identifying two or more trends that you believe are most likely to have an impact on the information and knowledge environment. If you are working in a group, you may want to discuss and even vote on which you think are most important.

   You could either use the Trends from the literature review, or alternatively if you have carried out exercise 1, use one of your own.

2. You should then then decide how you think each of your trends is likely to evolve into the future – which of the sub-trends are most likely to come true? How positive or negative is this trend likely to be?

3. Then think about how the trends will interact. In particular, what are the implications they are likely to have for communities (including different groups within communities or societies), for education, for research, for culture, or for democracy?

   You could use exercise 2 in order to structure your thinking here, and get an idea of how the different ways in which different trends may go could lead to very different worlds.

4. Bring different elements together in a scenario – a picture of what the world could look like if the combination of trends you have discussed become real. Again, you can use the model of the scenarios already shared in the report, but you can also be more creative, for example drawing a newspaper or magazine front page, or imagining the speech that a library association president or national librarian may need to make in that world.

If you are in a group, you can split up and develop a variety of scenarios!

WAYS TO PLAY
DAY IN THE LIFE

This exercise takes inspiration from the scenario provide by Mei Lin Fung, whose scenario tracks the daily life of Amina, a librarian in Tanzania. This is a powerful way of going from big, abstract ideas to something far more concrete, and in doing so, testing out what this might mean for us. It can trigger a discussion about how to help build readiness at all levels.

Practically, you should follow the below steps:

1. Pick one of the scenarios proposed in the Trend Report. You could either choose one that you think is more likely, or challenge yourself by picking a 'black swan' event (i.e. one that seems improbable, but which would have huge implications).

To note – if you are working in a group, you may want to pick more than one scenario here

2. Agree on a persona – in other words, whose day are you describing. Is it someone providing direct services, or a manager or association leader? At what career stage are they? What sort of community do they serve?

If you are working in a group, you may want to pick more than one personas. You can then compare how a single scenario will affect librarians differently. Alternatively, if you are working with more than one scenario, perhaps use the same persona.

3. Design their calendar for the day – how are they spending their time?

- Try to explain more about how each activity works. What are the goals of each activity? Who is your persona working with? How does this fit in with longer-term planning?
- Think also about how your persona will have time to look after themselves, and have the energy and ideas do to their job well!

4. Think about how ready a librarian today would be to manage the type of day you have set out. What knowledge and skills are required, what partnerships need to be formed?

You could try to identify a set of priority actions needed to help a librarian be ready for this world – is it training, support for relationship building with others, or something else?

5. If you have developed more than one persona, compare these. Try to present them in as dynamic and fun a way as possible, but with a focus on trying to understand the differences and similarities.

Here too, you can think about what sort of priority actions would help your personas get ready for the types of activity included in the calendars you have developed.

WAYS TO PLAY
PLAN FOR UNCERTAINTY

As highlighted in the introduction, the goal of providing a range of scenarios is to underline the wide variety of different futures that the world may face. The challenge that we have is that we do not know which one is going to become true, or indeed which combination of scenarios.

This exercise addresses this challenge directly, and provides a way of thinking through how we can plan for different – and uncertain futures. In particular, it encourages thinking about how we may want to invest time and resources in order to maximise our chances of being able to serve our communities effectively in the future.

This exercise can be carried out either in a purely collaborative way, as an individual or group, or can potentially be made a little more competitive!

1. Start by agreeing on your context – are you thinking from the perspective of a library, a network, a ministry or agency, an association or something else? Try to makes this a perspective that everyone involved will be familiar with so that all can feel engaged.

2. Next, choose three or more scenarios. These should all be relevant for your situation, but you can pick a mixture of more or less likely ones. The idea of the exercise is that you do not know which of these will come true.

One option is to use three of the scenarios included in this report. Another is to use your own, as developed in exercise 3 above, or alternatively you can use the four potential outcomes that you would arrive at from exercise 2 as a basis.

3. If you are working collaboratively, your challenge is to develop a medium-term strategy or plan for the institution or organisation you chose in point 1 above.

- Think in particular about different aspects of your planning, and in particular how you want to allocate available money and effort. Where do you think you might need to do more? Where can you afford to do less?

- If you are thinking as an association or agency, you could use your existing strategy as a model, or alternatively use IFLA's new Strategy, focusing on professional community, partnerships and advocacy, capacity-building and leaders, and wider governance.

- In particular be aware of how different scenarios might require different things. Does this lead to difficult choices? Or are there investments which help prepare you for all the different scenarios?

4. If you are working more competitively, each group can come up with their own strategy, bearing in mind the considerations under point 3 above. You may want to use a common template for a strategy to make things easier.

5. To make things more complicated, you may want to add or take away a scenario half way through the reflection. This can change the choices you may make about the future.

6. Once your strategy (or strategies) are ready, you should present these briefly, for example with a slideshow, or a draft strategy document which you can share.

7. At this point, you should 'look into the future', and select just one of the scenarios that you have been working with. Take a moment to think about how ready you were for this particular outcome. If you are working in different groups, each one should carry out a (kind!) assessment of the strong and weak points of each other's strategy. Alternatively, you can carry out a self-assessment.

- Think back on the process that you followed. How ready were you for the scenario that eventually came true? What do your discussions tell you about how to plan for the future?

- You will likely find that some things you invested in turn out not to be relevant – for example, new buildings might not be so important if we move to an even more digital only world. However, this does not mean that this was a waste ! It is interesting, nonetheless, to think about which investments are most likely to bring benefits, regardless of the future we are likely to see.

CONCLUSION

Across 7 trends and 29 sub-trends, as well as 16 different scenarios for the future of information, the Trend Report offers, we hope, not just a stimulating read, but also a toolkit that can serve across the library field.

It explores technological, social, political, environmental and other questions, underlining the huge impact that the information and knowledge environment can have on other parts of our lives and societies.

It is a report targeted at leaders, and that should support leadership, but as has been underlined at various points, we see leadership as a skill that can be practiced and developed at all levels and career stages. This leadership is vital if we are to think ahead, and ensure our sustainability and resilience into the long term.

It is also, we hope, a driver of reflection on the potential for partnerships to help ensure our sustainability, and maximise our positive impacts. The trends and scenarios we explore are not for libraries alone, but implicate a wide variety of people and stakeholders.

The Report is being launched at the IFLA Information Futures Summit in Brisbane, Australia on 30 September, but this is far from the end of the process. We look forward to developing and sharing learning materials based on the Report in order to support education and lifelong learning. We will also add further scenarios, enriching the tools available to you. And we will be collecting stories of how you have used the Report in your own work.

Look out on IFLA's website for more, including opportunities to engage.

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LIST OF REPORTS INITIALLY CONSULTED

SOURCE	REGION	URL	TYPE
GWI	US	https://www.gwi.com/connecting-the-dots	Consumer
Densu Creative	Global	https://info.dentsu.com/l/579173/2023-12-06/fgkgxc/579173/1701889627qy7TPZy7/DENTSU_CREATIVE_TRENDS_2024.pdf	Consumer
Ipsos	US	https://www.ipsos.com/en/almanac-2024/four-critical-trends-will-drive-brand-growth-2024-and-beyond	Consumer
Deloitte	US	https://www2.deloitte.com/xe/en/insights/focus/tech-trends.html	Technology
Council on Foreign Relations	US	https://www.cfr.org/article/visualizing-2024-trends-watch	Geopolitical
Accenture	Global	https://www.accenture.com/content/dam/accenture/final/accenture-com/document-2/Accenture-Life-Trends-2024-Report.pdf	Consumer
S&P Global Research Council	Global	https://www.spglobal.com/en/research-insights/featured/research-council	Economic
Demos	UK	https://demos.co.uk/wp-content/uploads/2023/12/Drivers-of-Digital-Discord.pdf	Information
The Future Laboratory	Global	https://www.thefuturelaboratory.com/hubfs/Global%20Drivers%202030%20by%20The%20Future%20Laboratory%20Executive%20Summary.pdf	Socioeconomic
European Commission	Europe	https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight/2023-strategic-foresight-report_en	Socioeconomic
OECD	Global	https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight/2023-strategic-foresight-report_en	Socioeconomic

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SOURCE	REGION	URL	TYPE
CSIRO	Australia	https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/CSIRO-futures/Innovation-Business-Growth/Australian-National-Outlook	Socioeconomic
Gartner	Global	https://www.gartner.com/en/articles/6-macro-factors-reshaping-business-this-decade	Business
UTS	Australia	https://www.uts.edu.au/about/faculty-engineering-and-information-technology/postgraduate/articles/five-tech-trends-2024	Technology
Technology Magazine	Global	https://technologymagazine.com/top10/top-10-technology-trends-for-2024	Technology
Forbes	US	https://www.forbes.com/sites/bernardmarr/2023/09/11/the-top-5-tech-trends-in-2024-everyone-must-be-ready-for/?sh=5c29a4399a6b	Technology
Gartner	Global	https://www.gartner.com/en/articles/gartner-top-10-strategic-technology-trends-for-2024	Technology
Forbes	Global	https://www.forbes.com/sites/marymeehan/2023/12/28/trends-for-2024-the-changes-shaping-the-year-ahead	Consumer
Mining Review Africa	Africa	https://www.miningreview.com/base-metals/africa-trends-to-watch-in-2024/	Geopolitical
UNU EHS	Global	https://s3.eu-central-1.amazonaws.com/interconnectedrisks/reports/2023/UNU_Tipping-Points_231017_no-watermark.pdf	Risk
Ministry of Digitalisation & Equality (Denmark)	Denmark	https://digmin.dk/Media/638357207253210400/SVM%20regeringen_Danmarks%20digitaliseringsstrategi_2023_V9_Online_Final%20(1)-a.pdf	Digital
Danish Government	Denmark	https://www.regeringen.dk/media/6537/ai-strategi_web.pdf	Technology

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SOURCE	REGION	URL	TYPE
7 Generations	Denmark	https://www.fremforsk.dk/files/Boeger/7-generationer-intro.pdf	Demographic
Civil Society in Numbers	Germany	https://www.ziviz.de/sites/ziv/files/ziviz-survey_2023_trendbericht.pdf	Socioeconomic
Toerisme Vlaanderen	Belgium	https://toerismevlaanderen.be/en/node/924	Socioeconomic
The Centre for the Future of Libraries	US	https://www.ala.org/tools/future/advisorygroup	Information
Gallup	Global	https://www.gallup.com/workplace/547283/workplace-trends-leaders-watch-2024.aspx	Business
Economist Intelligence Unit	Global	https://viewpoint.eiu.com/analysis/geography/XA/reports/one-click-report	Economic
Economist Intelligence Unit	Global	https://viewpoint.eiu.com/analysis/geography/XA/reports/one-click-report	Risk
Global Risk Forecast 2024 Crisis24 (Garda)	Global	https://crisis24.garda.com/	Risk
The Conference Board	Global	https://www.conference-board.org/publications/pdf/index.cfm?brandingURL=global-economic-forecast-update	Economic
Sandvine Global Internet Phenomena Report	Global	https://www.sandvine.com/hubfs/Sandvine_Redesign_2019/Downloads/2023/reports/Sandvine%20GIPR%202023.pdf?hsCtaTracking=3cbc04da-fd44-481b-ad03-811d23b7b2c5%7C131df09f-dbdd-41a0-9dce-aac8879403ff	Communications

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SOURCE	REGION	URL	TYPE
World Economic Forum	Global	https://www.weforum.org/publications/global-risks-report-2024/digest/	Risk
UN DESA	Global	https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP_2024_Web.pdf	Economic
World Economic Forum	Global	https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf	Socioeconomic
Nielsen IQ	Global	https://nielseniq.com/wp-content/uploads/sites/4/2023/01/NIQ-2023-Consumer-Outlook-Summary-Presentation.pdf	Consumer
2024 Trend Check	Global	https://www.trendwatching.com/2024-trend-check	Consumer
Reuters Institute	Global	https://reutersinstitute.politics.ox.ac.uk/journalism-media-and-technology-trends-and-predictions-2024	Journalism
Reuters Institute	Global	https://reutersinstitute.politics.ox.ac.uk/journalism-media-and-technology-trends-and-predictions-2032	Journalism
KPMG	Global	https://kpmg.com/xx/en/home/insights/2023/09/kpmg-global-ceo-outlook-survey.html	Business
Edelman	Global	https://www.edelman.com/sites/g/files/aatuss191/files/2024-02/2024%20Edelman%20Trust%20Barometer%20Global%20Report_FINAL.pdf	Trust
Forrester	Global	https://go.forrester.com/wp-content/uploads/2023/10/Forrester-Predictions-2024.pdf?_gl=1*1kp41qy*_ga*OTQyMTU5NjE3LjE3MDg5MTUzMTE.*_ga_	Business

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SOURCE	REGION	URL	TYPE
Gartner	Global	https://emt.gartnerweb.com/ngw/globalassets/en/marketing/documents/marketing-predictions-for-2024.pdf?_gl=1*103r5gv*_ga*MTgyMTkwODgzNy4xNzA3OTY2ODEx*_ga_	Consumer
Pew Research	US	https://www.pewresearch.org/short-reads/2024/02/21/introducing-the-pew-knight-initiative/	Information
Cisco	Global	https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.pdf	Internet
McKinsey Global Institute	Asia	https://www.mckinsey.com/mgi/our-research/asia-on-the-cusp-of-a-new-era	Business
Accenture	Global	https://www.accenture.com/us-en/insights/technology/technology-trends-2024	Technology
MIT Technology Review	Global	https://www.technologyreview.com/2024/01/08/1085094/10-breakthrough-technologies-2024/	Technology
Deloitte	Global	https://www2.deloitte.com/us/en/insights/focus/human-capital-trends.html	Human Capital
World Intellectual Property Organization (WIPO)	Global	https://www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2023-en-main-report-global-innovation-index-2023-16th-edition.pdf	Innovation
World Intellectual Property Organization (WIPO)	Global	https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1055_2021.pdf	Technology

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SOURCE	REGION	URL	TYPE
PwC	Global	https://www.pwc.com/gx/en/issues/c-suite-insights/ceo-survey/methodology.html	Business
PwC	Global	https://www.pwc.com/gx/en/industries/tmt/media/outlook/insights-and-perspectives.html	Entertainment & Media
PwC	Global	https://www.pwc.com/gx/en/industries/tmt/telecom-outlook-perspectives.html	Telecoms
Bain & Company	Global	https://www.bain.com/globalassets/about/2023-global-pe-report---roadshow-deck.pdf	Socioeconomic

International Federation of Library Associations and Institutions

IFLA Headquarters
Prins Willem-Alexanderhof 5,
2595 BE The Hague
The Netherlands
+ 31-70-3140884
ifla@ifla.org
www.ifla.org