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# My assistive technology outcomes framework: rights-based outcome tools for consumers to 'measure what matters'

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## ABSTRACT

AT outcomes research is the systematic investigation of changes produced by AT in the lives of AT users and their environments. In contrast to focal outcome measures, My Assistive Technology Outcomes Framework (MyATOF) envisions an alternative starting point, co-designing a holistic and evidence-based set of outcome dimensions enabling AT users to quantify their own outcomes. International classification systems, research evidence, regulatory and service delivery frameworks underpin six optional tools: supports, outcomes, costs, rights, service delivery pathway and customer experience. Designed to empower the consumer-as-researcher and self-advocate, MyATOF has the potential to fill an identified gap in policy-relevant, consumer-focussed and consumer-directed outcome measurement in Australia and internationally. This paper presents the need for consumer-focussed measurement and articulates the conceptual foundations of MyATOF. The iterative development and results of MyATOF use-cases collected to date are presented. The paper concludes with next steps in using the Framework internationally, as well as its future development.

## ARTICLE HISTORY

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## KEYWORDS

Assistive technology; consumer-directed/focussed; outcomes; self-direction

## Introduction

In Australia and internationally, disability, health and aged care policies are shifting toward consumer-driven care, which is profoundly altering the relationship between consumer and practitioner. Individualized funding principles are a core tenet of consumer-direction (Benjamin, 2001; Ottmann & Laragy, 2010) and reviews of self-managed funding models demonstrate a range of health and social care outcomes (Fleming et al., 2019; Mavromaras et al., 2018). Aligned with individualized funding, service options and offerings are evolving as consumers (users of AT) are now regarded as “customers” with individualized funding budgets. To have a voice and be understood in these new funding and service contexts, consumers and the allied health practitioners (AHP) who support them must evidence the need for, and measure the outcomes achieved by the adequate funding of supports in new and innovative ways.

With these changes, consumers are often now in the position of selecting their AHPs and resulting supports and have the opportunity to direct their service planning as has never been possible before. This necessitates a clear understanding of supports and costs, as well as the processes of service acquisition. A gap currently exists whereby professionalized knowledge, assessment tools, and published outcome measures are rarely translated into practical tools to support discussions (and decisions) between

consumers and their AHPs and support networks (Cochrane Collaboration; Foley et al., 2020; Lofgren et al., 2011; Moskos & Isherwood, 2019) and, as importantly, applicable funding bodies. The My Assistive Technology Outcomes Framework (MyATOF) has been developed to address this gap.

## Assistive technology

Assistive Technology (AT) – which encompasses both assistive products and services (World Health Organisation, 2018) – is a highly effective intervention to mediate the capability gap experienced by people with disability. AT can enable people with disability to meet individual rights across multiple domains of internationally recognized conventions (E. M. Smith et al., 2022) and deliver on the Sustainable Development Goals (SDGs) (Tebbutt et al., 2016). AT is also a pillar of Universal Health Coverage (UHC), alongside related interventions including environmental adaptations, rehabilitation, and personal support (Layton et al., 2020; R. O. Smith, 2017). The International Organization for Standardization (ISO) defines AT as “any product (including devices, equipment, instruments, and software), either specially designed and produced or generally available, whose primary purpose is to maintain or improve an individual’s functioning and independence and thereby

promote their wellbeing” (ISO, 2022). AT services refer to the “human factors” necessary to fit product to person, environment and task, and include the application of organized knowledge and skills to the provision, use, and assessment of assistive products (Khasnabis et al., 2015; WHO & UNICEF, 2022).

### **Assistive technology and outcomes**

Two tensions co-exist when considering AT and outcomes: firstly, what outcomes are important, and secondly, from whose standpoint are outcomes considered (professional or AT user/consumer). Varying types of outcome measurement used in the field of AT are described in the peer-reviewed literature for example the ingo/outcome approach explored by Dr Roger Smith and colleagues (R. Smith, 1996; R. O. Smith, 2002). Early conceptual work defined AT outcomes research as:

... systematic investigation aimed at identifying the changes that are produced by AT in the lives of AT users and their environments. Those changes may range from improvements in delimited aspects of AT users’ motor, sensory, and cognitive functioning to enhancement of their social participation, vocational productivity, and sense of control over their own lives. The cascade of outcomes may extend to individuals’ environments as well and include, for example, a reduction in caregivers’ assistance and decreased costs to insurers and social welfare agencies. (Fuhrer et al., 2003, p. 1244)

Acknowledging assistive products may have both proximal effects and distal outcomes, the outcome focus came to be operationalized as effectiveness, social significance, and subjective well-being (Jutai et al., 2005), all variously defined and evidenced through a range of measurement methodologies. Scholarly work over several decades has mapped the landscape of potential outcomes and to date has produced a range of important tools and measures (see, for example (Federici & Scherer, 2017)).

A number of challenges persist. First, data are still not routinely collected, and consensus has not been reached on the set of outcome dimensions to be measured (Global Alliance of AT Organisations, 2022; J. A. Lenker et al., 2021). Second, methodologists note the provision of AT is a multifaceted intervention and therefore AT outcomes research is complex, for example, the performance of regular daily tasks without AT, sometimes termed “naked performance,” is rarely evaluated and therefore the full impact of AT is often under recognized (Rust & Smith, 2005). Third, to attain methodological rigor, studies often focus on a specific product or population/cohort, making it difficult to systematically review intervention studies (Dijkers, 2009; R. Smith et al., 2019) and to deliver high-quality evidence to guide policy (World Health Organisation, 2017). Fourth, the measurement of effectiveness is impacted by the multiple components of AT service provision making it challenging to evaluate the performance of an assistive product without also considering the impacts of AT services to fit the individual person, task and environment (Federici & Scherer, 2017).

A number of useful AT outcome measures exist for focal purposes. These include measuring predisposition to AT, user satisfaction, psychosocial impact, and the impact of individual product types such as wheelchairs or prostheses. Some approaches combine a number of different validated measures to obtain a more holistic picture across multiple dimensions,

and are designed for use by professionals with AT users such as with computing (Andrich, 2018) or education (Edyburn, 2004).

This brings to bear the second tension: the complexity of competing standpoints where discourse around outcomes is dominated by professional perspectives rather than the consumer – that is, the AT user and their priorities. The term “outcomes” holds different meanings for consumers (and other stakeholders). Lenker and colleagues conclude that outcomes research methodologies which reflect consumer perspectives would measure the impact of assistive products on participation as well as the costs of AT provision; and will provide data characterizing the AT service delivery process (J. Lenker et al., 2013, p. 376). Attempts have been made to argue that the professional vantage point is partial, such as developing tools which explicitly seek consumer (or subjective) perspectives (Brown et al., 2004). Federici and Scherer explain the difference between the subjective (consumer) and the objective (professional) perspective as follows:

... subjective measures are those that collect and evaluate the subjective perspective of the users on their functioning; the objective ones are those that measure the user’s functioning from the perspective of the professionals to the extent that they make reference to standardized normative values. (Chapter 2, p. 34) (Federici & Scherer, 2017)

An increasingly realist view is evident in the outcomes literature over the last decade, particularly in relation to informing policy (Madden et al., 2015). Global thinking on AT, led by the World Health Organisation, has offered a systems view which encompasses people (AT users), policy, personnel, products and provision, with its most recent iteration being the 5P people-centered assistive technology systems model within the 2022 Global Report on AT (WHO & UNICEF, 2022). Such a systems approach acknowledges multiple stakeholder standpoints and purposefully centers the AT user, as well as embracing complexity and addressing AT and its outcomes holistically i.e. as part of an ecosystem. A summary of AT outcome measures according to these system dimensions (R. Smith et al., 2019) was published as a background paper to the 2022 Global Report on Assistive Technology (WHO & UNICEF, 2022). The range of challenges in synthesizing practice, research and policy in AT outcome measurement, with calls from consumers of AT for increased self-determination, skill recognition, and self-defined outcome measurement is discussed.

The MyATOF invites consumers to consider their experiences, goals, and AT journeys in relation to internationally understood benchmarks, and to engage in self-directed reporting. This makes personal data structured and uniform. It also offers the AT user the opportunity to further acquire needed AT supports, and self-advocate for necessary services and/or funding, in order to pursue life goals. It is in this context that the MyATOF was conceptualized and developed.

### **My assistive technology outcomes framework (MyATOF)**

MyATOF was explicitly co-designed with AT users and Disabled People’s Organisation (DPO) contributions, as a consumer-centric set of AT outcome tools. The framework was structured to enable consumers to provide personal input

and use their own evaluative data to evidence the impact and/or effectiveness (or ineffectiveness) of their AT. MyATOF considers a broad range of linked elements necessary to inform AHPs and funders regarding AT purchases within an individualized funding system.

The conceptual foundation of the MyATOF framework developed out of a doctoral study investigating the costs and outcomes of AT and related support (Layton, 2014), grounded in empirical research (*Equipping Inclusion Studies*) into participation outcomes for 100 AT users in Victoria, Australia (Layton et al., 2010). Philanthropic funding to conduct the *Equipping Inclusion Studies* was obtained and administered by an alliance of AT stakeholders, including AT users. This enshrined co-production of the research aims and objectives at project inception and throughout the process (Layton & Wilson, 2009). Key findings demonstrated AT “bundles” typically include 9 to 15 assistive products and services and/or environmental modifications often used concurrently to meet needs. For example, a mobility assistive technology “bundle” may comprise both assistive products and services, including the wheelchair plus seating system, portable ramps, joystick-operated automatic door opener, accessible charging point, and peer support and coaching to develop wheelchair skills. Yet, policy and funding schemes frequently did not deliver systemically, but rather piecemeal, on this need (Australian Healthcare Associates, 2020; Layton & Wilson, 2010).

The MyATOF serves to enable AT users and AT practitioners to quantify which assistive products and services deliver on priority outcomes. The framework’s tools seek to identify which AT is used or required, to what degree AT impacts upon their lives now and into the future, whether their human rights are being realized, and what unmet or under-met outcome areas remain to be fulfilled, and at what likely cost. MyATOF is designed to be applicable across all disability types and AT/support categories.

Development of the MyATOF is detailed in the methods section below, with the domains and rationale as well as use case data described in the Results section. The complete framework and tools are listed in Table A1 and can be viewed and used freely online: [www.at-outcomes.org](http://www.at-outcomes.org).

## Method

### Development and co-production process

#### Foundations

The literature base, empirical data and use cases for MyATOF were identified via doctoral research completed in 2014 (Layton, 2014), with use cases then built upon from 2016 to 2022 (see results section for details).

#### Co-producers

A group of civil society colleagues, many from Disabled Peoples Organisations (DPOs), identified the need for the initial research and subsequently collaborated on its development, forming a voluntary steering group in 2016, following principles of co-design (WACOSS, 2017). The terms of engagement for the steering group were based on both collaboration, where collaborators bring different but equally valued knowledge and perspectives;

and consensus decision-making, a process in which group members develop and agree to support a decision in the best interest of the group. The steering group comprises of AT users, representatives from DPOs and AT practitioners provided oversight of several cycles of design. As chief investigator, the first author (NL) coordinated all work relating to the development of MyATOF, referring to the steering group at regular intervals over the last 8 years. Touchpoints (e-mail updates or meetings) occurred at a minimum of 6 monthly intervals, with meeting notes and materials shared through e-mail, Dropbox or other platforms such as Google Documents based on steering group preference and requirements of the tasks. Some DPO representatives have changed over time and others opted in and out based on workload and interest.

### Co-production/co-design and ethical considerations

Co-design a feature of several studies in which ethics approval from a university human research ethics committee (HREC) was obtained (Bell et al., 2021; Layton et al., 2010). While much of the co-designed development of the framework has been undertaken without specific ethics approval from a university HREC, multiple members of the team have extensive experience in both research and clinical work with people with disability. Written or verbal consent has always been obtained prior to presenting or publishing any individual’s stories of use of the MyATOF.

### Framework iterations

The foundational material was developed by the steering group into a draft framework for review by AT stakeholders. The concept and format of MyATOF, including a preliminary wireframe design were presented at an interactive plenary forum at the Australian Assistive Technology Conference 2018 (Australian Assistive Technology Conference, 2018). This involved civil society partners, specifically the Australian Rehabilitation and Assistive Technology Association (ARATA), Australian Federation of Disability Organisations (AFDO) and the Australian Occupational Therapy Association (OTA). This interactive forum was attended by multiple AT stakeholders, including people who use AT in their own lives, advise on or assess need for AT, supply or develop AT, or undertake research or education in the area. N-270 attendees reviewed, provided feedback and endorsed the domain’s relevance and utility for AT outcome measurement.

Whilst the steering group of co-producers endorsed the foundation MyATOF principles and shaped their i) format; ii) content and iii) measurement, the 2018 forum allowed for confirmation and endorsement of six tools which can be used by a person to measure AT outcomes, and two tools for knowledge translation (including recording and sharing of personalized AT outcome data). These are summarized in Figure 1 below.

## Results

Since the forum in 2018, iterative development cycles have resulted in findings specific to the MyATOF format, content, measurement and usability testing, which are reported on below and summarized in Figure 2.

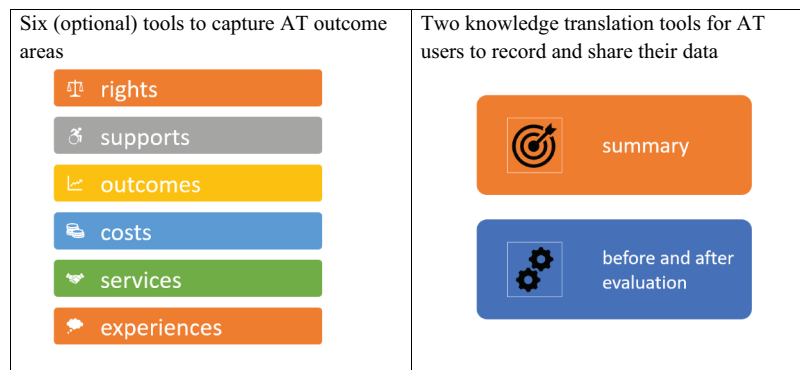


Figure 1. MyATOF dimensions – content, process and measurement.

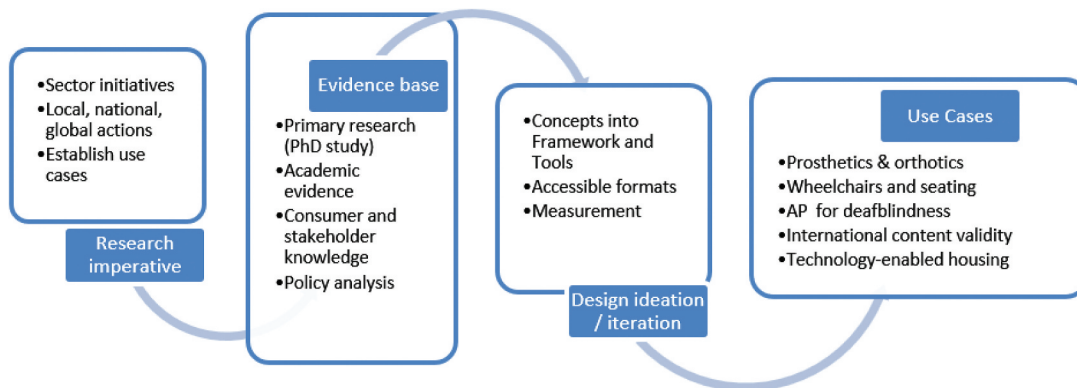


Figure 2. MyATOF design process.

### Findings: MyATOF format

Collaborative consensus identified two priorities related to the format of MyATOF. First, that the framework and tools must be robustly accessible, suiting the widest diversity of user needs. Building on research concerning accessible tools (Gottlieb et al., 2010; Wilson et al., 2013), MyATOF comprises plain language descriptors and question sets which are available in accessible online formats (useable by screen reading or switching software), as well as pen and paper/PDF “interview” format. All of the tools within the framework are optional for use, based on a person’s needs and goals and how AT and associated outcomes may be achieved. Secondly, autonomy and the option for collaborative reporting are built in. AT users select the domains of importance to them and may complete the tool related to that domain either independently or with a collaborator, in the online version, in writing, or via a narrative interview with a nominated scribe.

### Findings: MyATOF content

Collaborative consensus, based upon a review of key literature, identified 6 dimensions: human rights; quantifying supports; activity and participation outcomes; considering costs (direct costs, cost offsets, downstream costs and social return on investment); agreed AT service delivery steps; and consumer experience. For each dimension, agreed definitions and scope emanated from multiple sources: international classification systems, research evidence, and regulatory and service delivery

frameworks. These six dimensions, the way they are operationalized and the literature from which they are drawn, are summarized in Table 1.

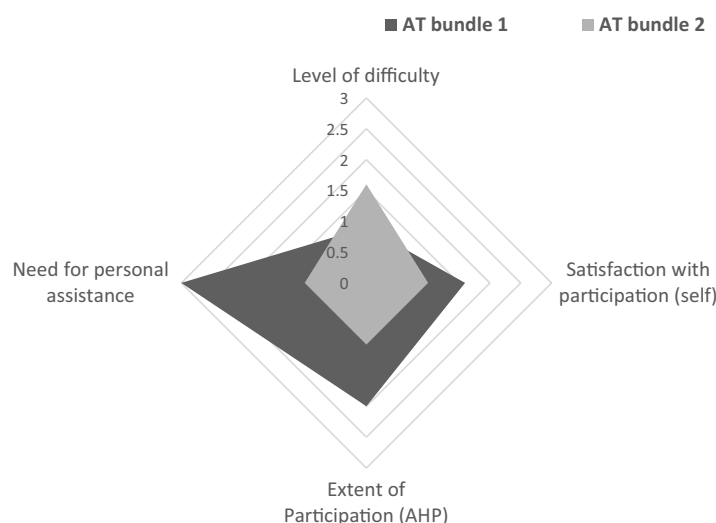
Each of the six content areas (tools) offers a question for AT users to answer in relation to a set of categories or topics within the tool. For example, My Supports offers a pre-populated set of 24 categories of AT from which AT users can select. The MyATOF offers nine areas (i.e. the Activity and Participation domains of the ICF) to rate, though these can be replaced by funder-centric outcome dimensions where it is beneficial for the consumer to evaluate attainment against these. While the content areas (tools) are offered in sequence, both the use of the tool, and in which order completed is optional, for example, the prosthetic and orthotic community elected to commence with the My Rights tool as a sensitizing approach to contextualize the use of their assistive product bundles (Layton, Noonan, et al., 2019)

### MyATOF measurement

Collaborative consensus has prioritized the “n of 1” approach whereby AT users are enabled to specify their unique AT solutions and situations regarding rights, services, costs, experiences and outcomes. The majority of MyATOF tools therefore do not produce a score as such, rather, provide a stepped exploration of “what (supports) for what costs and outcomes”, which becomes a personal narrative. This quantifies an individual’s life with and without AT, or indeed life with one AT option compared with another, either generated

**Table 1.** MyATOF dimension, operational framework and supporting literature.

MyATOF dimension	Operational framework and supporting literature
My Supports	Assistive products and environmental adaptations subset, drawn from current edition of ISO 9999 [38] and the local AT database in each jurisdiction for example
My Outcomes	WHO ICF Activity and Participation domains [39]
My Costs	Aspects of cost (direct costs, indirect costs, social return on investment) based on economic pathway analysis from a sector perspective [30,40–43]
My Rights	Subset of 12 Articles from United Nations Convention on the Rights of Persons with Disabilities [44,45]. Noting the articles selected explicitly call up AT, however many more articles are in scope if deemed relevant to users of MyATOF
My Service Delivery	6 AT service delivery steps [16,46–48]
My Customer Experience	8 aspects of customer experience [49–51]



**Figure 3.** Comparison of two AT bundles on four dimensions. Data compare standard AT bundle (1) with an optimal AT bundle (2) for an adult living with arthrogryposis. Bundle 2 included a five-fold increase in personal support hours, a fit for purpose power wheelchair, home modifications enabling independent ingress/egress to the home, and a vehicle modification. The data illustrate the decrease in difficulty and increase in personal assistance. Prior to Bundle 2, this individual did not have sufficient personal assistance for daily showers so it is important to note unmet needs were met. A significant increase in the extent of participation (allied health professional measured) is only considered to have increased moderately in satisfaction (self-measured). Here, the allied health practitioner noted the substantial increase in activities and participation independently undertaken. The AT user, however, noted they had relinquished certain hobbies (knitting) to take up part-time paid work and new hobbies. This occupational enrichment also represented a compromise in choosing what to do.

through the online interface, or as a result of manual data capture. A further “pre and post” summary tool offers optional numerical measurement data based on four dimensions aligned to the ICF and utilized published Australian Institute of Health and Welfare measures (AIHW, 2005; Bricknell & Madden, 2002). These constitute three self-report measures include degree of difficulty, time use, satisfaction with participation (person-rated) and extent of participation (independently rated) which can be superimposed in pre- and post AT scenarios to visualize the dynamic impacts of different AT use (see Figure 3).

### MyATOF useability testing and framework iterations

Given the breadth of assistive products available and the diversity of AT users, it is essential to test the useability of MyATOF across use cases, and to iterate accordingly.

Two iterations of an online platform design were achieved with the additional input of Swinburne University of Technology User-Centred Design students (2018) and then University of Melbourne, Master of Information Technology students (2019), a beta testing MyATOF platform is now available for free use via <https://www.at-outcomes.org>.

Concurrently and in partnership with stakeholder subsets including AT users, allied health practitioners and other AT professionals, the MyATOF was adapted for use by particular cohorts of AT users. Adaptations included, for example, providing a likely subset of assistive products (such as prosthetics) or adjusting user interfaces (such as large font and plain language). Results include MyATOF application and resulting conference papers by Australian AT users and AT practitioners in the fields of wheeled mobility and seating (Layton, Thomson, et al., 2019); and orthotics and prosthetics (Layton, Noonan, et al., 2019); and a case study of an AT-enabled smart home (Layton & Le Cerf, in press) and for individuals with deafblindness (Bell et al., 2021).

The study with people with deafblindness (Bell et al., 2021) also explored the relevance and face validity of the MyATOF dimensions internationally, specifically in the Southern African Development Community. Findings demonstrated that AT was rarely available and that human rights were poorly understood. Nevertheless, MyATOF was strongly endorsed as an awareness raising tool to support people to articulate, specify and advocate for AT and related supports on a rights basis (Bell et al., 2021).

A parallel thread of enquiry has explored the utility of MyATOF within the professional communities, in light of

the epistemological positioning of MyATOF as a resource for consumers of health services, rather than only the professionals who serve them. Interest and uptake has been positive, particularly from AT users. The consumer empowerment literature suggest that knowledge translation strategies which engage multiple stakeholders along the product narrative will be required for comprehensive uptake (Hill, 2011). Results to date do indicate that this reorientation of perspective is occurring, as discussed in papers related to orthotics and prosthetics (Layton, Noonan, et al., 2019) and occupational therapy (Layton, Doyle, et al., 2019), and internationally (Layton & Callaway, 2020).

These results have been used to inform the production of print/PDF tools which can be completed by an individual (see Table A1), as well as the beta-test digital MyATOF build (<https://www.at-outcomes.org>). Using both formats, a set of preliminary studies have been conducted in partnership with AT users through their existing professional AT networks. Furthermore, a video overview of MyATOF, including an AT user's experience of the framework, has also been produced with AT expert user Carl Thompson and can be accessed directly via <https://youtu.be/oJ3fNslLw4>.

Preliminary studies focused on the development of a set of use cases across specific AT product categories (ISO, 2022) to demonstrate the use of MyATOF have been undertaken. Categories in these use cases included: a) seating and positioning products (Layton, Thomson, et al., 2019); b) orthotics and prosthetics (Layton, Noonan, et al., 2019); and c) sensory assistive products (including products for people with deaf-blindness) (Bell et al., 2021), and home-based technology to support an individual with low vision, mobility, and cognitive-behavioral issues experienced as a result of acquired brain injury (Layton & Le Cerf, *in press*). An international Delphi study validated the content of MyATOF domains in Southern Africa (Bell et al., 2021). Together, this work culminated in a beta-test digital MyATOF platform (accessed via <https://www.at-outcomes.org>), and a range of conference papers and other publications (2020–2022).

Current research (under review) involves an author living with acquired brain impairment and NL, reporting on the adaptation of MyATOF for collaborative interviewing with occupational therapy students to ascertain outcomes related to AT-enabled housing (Layton & Le Cerf, *in press*, Brain Impairment).

To date, useability testing has occurred where opportunities arose among collaborators and partners to i) collaboratively tailor MyATOF for specific uses, ii) utilize and evaluate MyATOF performance and user experience, and iii) further refinement/technical development based on learnings.

## Discussion

The MyATOF inception and iterative development process is an outcome of academic enquiry, disabled persons and Disabled People's Organisation experiences of AT needs and outcomes, as well as civil society actions. The framework consisting of six optional tools is founded on both academic evidence and policy realities to consider what is needed to put research capability into the hands of AT users. It enables

people to describe their goals and needs, as well as their lives, aspirations and outcomes, utilizing languages and structures which are both powerful and accepted by AT policymakers, professionals and funders. Effectively, the recursive and step-wise pathway over 8 years represents a responsive knowledge translation process.

The body of MyATOF-related publications evidence a range of impacts for AT users. These include capability building, testing the impact of supports, and regulating one's own evidence base. In terms of capability building, AT users identify their current situation through the MyATOF tools and, from this starting point, envision the ways in which life might be different with various or expanded supports or life outcomes.

In terms of testing the impact of supports, AT users have "run" the Tools with varied AT bundles, or with an enhanced assistive product, thereby forecasting the difference made to outcomes and to costs. Repeatedly completing the Tools for different AT bundles enables AT users to document their reasoning and the hypothetical impact of various solutions, supporting conversations with AT practitioners and providing an evidence-base for self-advocacy regarding enhanced or improved supports.

With regard to regulating one's own evidence of outcomes achieved over time, AT users are interested in the capacity to build multiple reports, either for various AT bundles or at various points in time. These reports: record AT use over time, track the process as capability changes and outcomes are achieved, and provide a record of the impact of AT use (and need) for funders. Author 6 (MN) in her capacity as AT user expert and CEO of a DPO offers the following narrative regarding MyATOF,

From a consumer perspective, the MyATOF promotes confidence and empowers consumers in a way that no other supporting tool can. It helps to build confidence in the decision making process while promoting insight to day to day needs. It also enables consumers to understand and identify their AT gaps and those which need to be met in order to live an independent life. Consumers with a disability feel somewhat intimidated when engaging a healthcare provider/practitioner – especially for those with an acquired disability who do not have the luxury of time to fully understand AT options available to them in the marketplace. (Noonan, 2020)

## Limitations and future work

The MyATOF has limitations that should be considered by others and will be in focus within future research. First, the framework has been developed from a grassroots standpoint in Australia. Whilst it has now been used in Southern Africa (Bell et al., 2021) and presented in the USA (Layton & Callaway, 2020), it should be noted that the framework is likely to reflect specific geographical and cultural views that require further international testing, including with culturally and linguistically diverse groups. Efforts to ameliorate this limitation have been made through the grounding of the Framework in the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006) and World Health Organization's International Classification of Functioning, Disability and Health (World Health Organisation, 2001/2018).

Second, the MyATOF provides a structure for key change dimensions, expressed as practical tools in person-first language, but the tools are not structured as measures per se. Rather, the AT user is encouraged to view domains as “optional”, based on their personal AT goals and needs. In the future, statistically meaningful measurement scaling could be built in; however, this may require a more standardized administration, and thus requires further consideration, consultation and input from the diverse stakeholder team. As the Framework stands now, the dimensions and questions illuminate “what is” and “what can be expected”, enabling a robust and methodical capture of data points with optional qualitative narrative, at one or more points in time for an individual. Proxy reporting has been the subject of much discussion, and the potential exists to adapt MyATOF for proxy reporting in the future, whilst noting the changes in the valuable “person-first” focus that exists currently.

Finally, the MyATOF is oriented to AT users with the potential to engage in activities and participation as defined by the WHO ICF. For that reason, the framework is described as having applicability to adults, youth and older persons. Its applicability to children is not yet established, as certain domains will be less applicable to children (such as a political life) and others, such as play, may be insufficiently amplified.

As the evidence base for MyATOF continues to grow, publications and presentations to date have been coauthored with AT users. An initial aim for MyATOF in focus for future work is the ability of a person to contribute personal stories of success or failure in AT use to a central evidence base, which may enable an aggregated picture of AT use. This is seen as valuable by AT users, who note that data is usually kept by AT funders and is both partial and opaque. Claiming such a role in consumer-identified outcomes and data collection is felt to be of epistemological and emancipatory value.

## Conclusion

MyATOF was conceptualized and developed upon a broad evidence base including iterative literature reviews, coupled with analysis of current policy contexts in Australia and internationally as well as the expert opinions of AT stakeholder and civil society colleagues. MyATOF offers a systematic way to tell the story of assistive technology need, use and outcomes from the AT user’s perspective. The Framework fills an identified gap in evidence-based, policy-relevant, consumer-focussed outcome measurement. MyATOF demonstrates the potential to aggregate and produce systematic data on the costs and outcomes of AT from the consumer’s perspective. By turning AT user “stories” into organized outcome data units provides evidence in support of providing the right AT, at the right time, to deliver a set of systematically forecast outcomes and working toward full realization of the rights of each individual.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Appendix

Table A1. My at outcome framework (MyATOF).

# My Assistive Technology Outcomes Framework (MyATOF)



[www.at-outcomes.org](http://www.at-outcomes.org)

MyATOF enables people to talk about their **technology** and their **accessible homes**. By **technology** we mean **assistive technology** and **mainstream technology**.

**Assistive technology** means assistive products, specially made or adapted for people with disabilities. Mainstream technology means generally available products which are useful to people with disabilities.

### Tool 1 My supports: what AT and other things do I use in my home

#### Prompts (list of technologies and housing adaptations)

can look at the range of AT on the National Equipment Database<sup>1</sup> to get the names for things

### Tool 2 My outcomes: what does my AT enable me to do?

**Prompt** the World Health Organisation tells us we participate in lots of different ways. Tick the areas you participate in. Write down what AT enables you to do these things.

- Mobility
- Do self-care
- Communicate
- Manage general tasks and demands
- Manage your domestic (home) life
- Learn and apply knowledge (e.g. remember, write, read)
- Relate to others
- Have an educational life
- Have an economic (working, volunteering) life
- Have a civic life (being part of the community)
- Have recreation
- Have a spiritual life (e.g. get to worship)
- Have a political life (e.g. get to vote in person)

### Tool 3 My rights: how does my AT meet my human rights. Indicate if your right is “realized” or “not yet realized”

Here are some rights from the United Nations Convention on the Rights of Persons with Disabilities

Article 9 Accessibility

Article 19 Living independently and being included in the community

Article 24 Education

Article 20 Personal Mobility

Article 21 Freedom of expression and opinion, and access to information

Article 25 Health

Article 26 Habilitation and Rehabilitation

Article 27 Work and Employment

Article 29 Participation in political and public life

Article 30 Participation in cultural life, recreation, leisure and sport

### Tool 4 My Costs: how much do my supports cost? How much do my supports save?

**PROMPT** thinking about how much supports cost. Also, thinking about savings, that is, money we don't have to spend because the supports are doing the trick. Please tell us about

- The cost of the AT and getting it set up and maintained
- Think about things you don't have to spend because you have the AT e.g. another piece of equipment, or less support work hours
- Can you think of any costs you may save later on, because you have your AT right now? This might fewer falls, better pressure care management due to better AT now.

### Tool 5 My Service Delivery Pathway

Good practice standards say that about 6 AT service steps should be followed to get the right AT set up in the right way for you. Did you get access to these AT service steps?

**PROMPTS:**

- Initiation: *Did I know where to start in getting my AT?*
- Assessment: *Did I get to receive info about “why” and “how” of assessment; did I contribute knowledge of my self, my environment, my goals? Was I asked “how is this going for you?”*
- Trying out my AT: *Could I contribute opinion and preferences if I wished to?*
- Choosing the AT I want: *Could I take part in the process of buying, applying for funding, talking to suppliers if I wished to?*
- Getting my AT: *was I involved with delivery/setup/trial as much as I wanted?*
- Afterwards: *could I go back and ask people questions? Did I have the opportunity to give feedback?*

### Tool 6 My Customer Experience

AT users tell us there are important things about getting AT that can be forgotten. What was important to you? Here are some things that AT users say they want.

Please tick which is important to you:

- I want the best combination of products, personal support and environmental design.
- I need access to sufficient funding for good quality and long-lasting devices.
- I need funding to meet AT needs in every area of life.
- A holistic assessment of needs, so that each device works well and doesn't interfere with other supports.
- Consideration of my AT needs across the lifespan and as needs change.
- Support throughout the process of getting AT, including product trial, training and maintenance.
- Access to resources when needed.
- Active involvement in decision-making
- Consideration of personal preferences and identity so that AT is chosen to suit lifestyle and participation

<sup>1</sup>[askned.com.au/](http://askned.com.au/).