July 2024

LIVE PERFORMING ARTS TECHNICAL SECTOR (WA)

THE WA LIVE PERFORMING ARTS TECHNICAL SECTOR AS A SOCIAL-ECOLOGICAL SYSTEM (SES)

Report prepared for CircuitWest by AFOCAL (Shona Erskine and Katt Osborne) and edited for distribution by CircuitWest

Updated February 2025

AFOCAL was assisted by the Australian Government through Creative Australia, its principal arts investment and advisory body, and the WA Department of Local Government, Sport and Cultural Industries.

TABLE OF CONTENTS

1. BOUNDING THE SYSTEM

1.1 Identify the Main Problem

The problem that WA LIVE PERFORMANCE TECHNICAL SYSTEM ('WA TECH SYSTEM') wants to solve is:

How can we, as the WA Live Performing Arts Sector, address the need for improved working conditions (remuneration, hours, training, safety) while actively supporting entry, retention and return into the field (mentoring, training, pathways), to ensure a work culture that is inclusive, vibrant and connected to creativity and community?

1.2 Define the Focal System

To approach solving your problem, its first crucial to understand the **focal system** that the problem sits in. To clearly define the focal system requires the input of diverse perspectives and knowledge systems, and an understanding of dynamic changes over time. It necessitates collaboration, participatory approaches, and methods that capture the complexity of interactions between your social and ecological components.

These conversations will **set soft boundaries**, that will specify which elements are included within your system's scope and which are considered external. These boundaries are spatial (region), social (cultural, political, economic), temporal, and conceptual. These define what constitutes the focal system - whether it's a community, organisation, network, sector, or larger societal entity.

1.3 Resilience 'OF' What?

This initial boundary identification determines what components your system is currently made up of, in relation to the main problem. The components include your key **attributes, resources, and stakeholders**. There will be important direct and indirect interactions, dynamics, and processes that occur between these components.

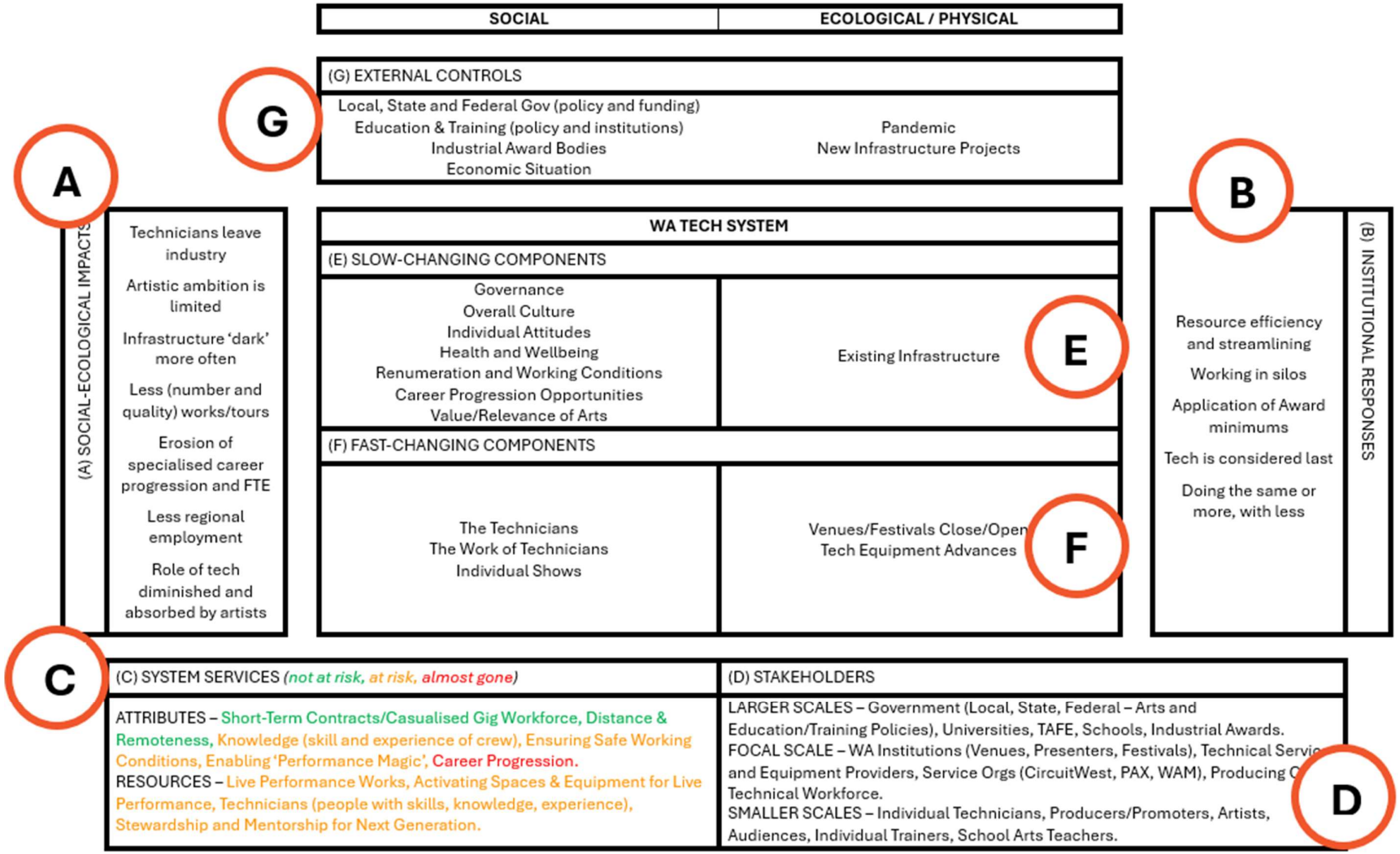
1.4 Resilience 'TO' What?

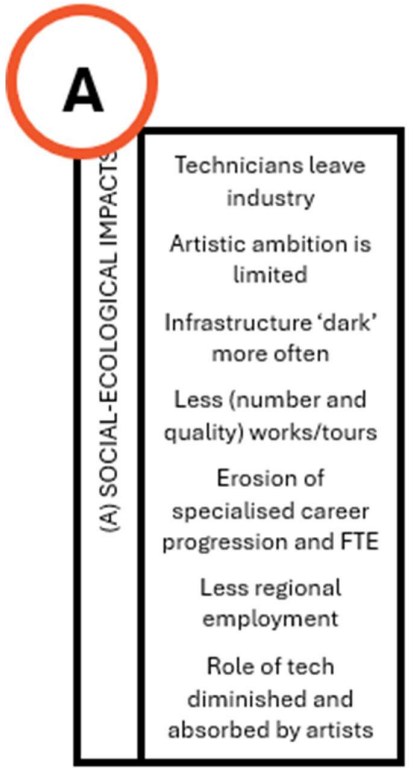
There are factors in your external environment that have created uncertainty around your problem, including how the problem arose and what to do about it. These uncertainties appear as **disturbance events or patterns of disturbances**. Understanding how these past disturbances have disrupted your system and contributed to your problem will help you work within uncertainty, as opposed to attempting to control or prevent it.

1.5 Space and Time Scales

The final part of bounding your system is to **expand the system**. Your focal system is influenced by factors that lie both within and outside its boundaries and within a hierarchy of nested systems. For example, what is happening at **larger scales** can influence your focal system, and what is happening at **smaller scales** can generate change from within. Larger scale systems tend to change more slowly and less frequently, and smaller scale systems tend to change more rapidly and frequently.

Figure 1: WA TECH SES Map





(A) Social-Ecological Impacts

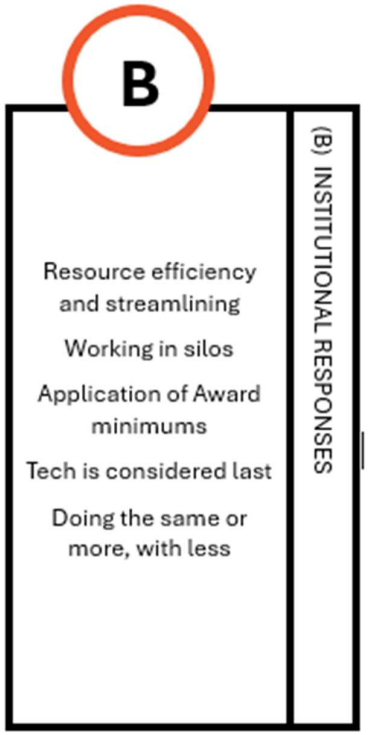
The impacts of not solving the problem:

- **Technicians are changing industries.** Many can be paid better for their skills in other sectors and enjoy better overall working conditions.
- **Artistic ambition is limited**. There are not the right people or skills available in the quantities needed for the sector to present a diversity of quality live works.
- Performing arts venues are difficult to manage and activate in the way they are intended to be, and significant **infrastructure sits 'dark'** (unused for long periods) more often and/or for longer periods.
- There are **less (number and quality) works and tours** occurring in WA.
- There is an **erosion of specialised career progression** for Technicians within institutions and across the system. There is increased casualisation of the workforce and inadequate **fulltime employee** hours to make a living.
- There is less adequate **regional employment** for Technicians, including a lack of mentorship and on-the-job training opportunities.
- The **role of tech becomes diminished and absorbed by artists.** With less technical expertise and personnel available, artists (especially independents) are picking up the slack and realising their vision to the best of their ability without technical support.

(B) Institutional Responses

Responses from organisations in the focal system, past and present, to your problem.

- In response to the numerous challenges the arts sector has faced over the past 25 years, organisations have increased their **efficiency and streamlined resources**. This has occurred in most areas of making, producing, presenting and touring works. It has had an impact on how technical departments and individual technicians are managed and governed. And it has eroded the general resilience of your system.
- There are several key performing arts venues in WA that have their governance heavily influenced and controlled by the larger scale. Venues that are Local Government-operated or Arts and Culture Trust (ACT)-operated, work in their respective **silos** and under complex governmental governance systems. Being responsive to the needs of the individual humans - and the needs of the art - is challenging for venues. There is also a lack of connection between some venues and their managements.
- Although the issues of the WA TECH SYSTEM are shared by all, most individual venues, festivals and organisations have approached working with, and managing, technicians in their own **siloed** way. This has been dictated by the level of resources of each organisation and the overall culture of the system (the cultures of both the WA TECH SYSTEM and wider Arts System).
- Most focal system organisations have **applied Award minimums** (unless under their own negotiated Enterprise Agreement). For technical personnel, LPA Award minimums are already set very low, and the structure of the Award does not adequately factor in years of experience.
- **Tech is often considered last** when shows are being planned. It is often taken for granted that technical expertise and personnel will be available and easily integrated in the final stages of a project.
- Many are trying to **do the same or more, with less**. The focal system organisations, and technical personnel working within them, are passionate and creative. They tend to find solutions to make shows and events happen no matter what. But a threshold has been crossed and this way of working has become unsustainable for many individuals.



C) System Services

Who you are and what you do. A social system **attribute** refers to characteristics or properties that describe the behaviour, structure, and qualities of a social system. A **resource** is what your system provides stakeholders. What you give to/produce for others.

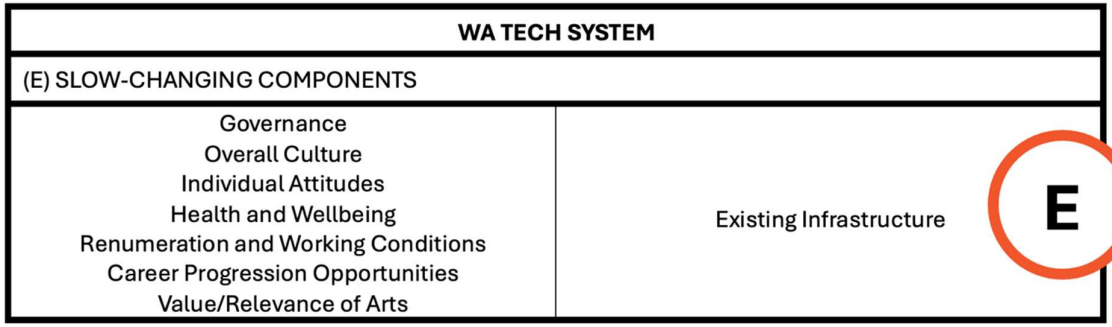
(D) Stakeholders

People and organisations you have relationships with. **Larger scale** stakeholders are organisations that tend to change more slowly and less frequently, such as government agencies. **Focal scale** stakeholders are organisations, relationships and people that are most closely connected to your system services. **Smaller scale** stakeholders include individuals and grass roots groups.

C

(C) SYSTEM SERVICES *(not at risk, at risk, almost gone)*	(D) STAKEHOLDERS
ATTRIBUTES – Short-Term Contracts/Casualised Gig Workforce, Distance & Remoteness, Knowledge (skill and experience of crew), Ensuring Safe Working Conditions, Enabling 'Performance Magic', Career Progression. RESOURCES – Live Performance Works, Activating Spaces & Equipment for Live Performance, Technicians (people with skills, knowledge, experience), Stewardship and Mentorship for Next Generation.	LARGER SCALES – Government (Local, State, Federal – Arts and Education/Training Policies), Universities, TAFE, Schools, Industrial Awards. FOCAL SCALE – WA Institutions (Venues, Presenters, Festivals), Technical Service and Equipment Providers, Service Orgs (CircuitWest, PAX, WAM), Producing Org, Technical Workforce. SMALLER SCALES – Individual Technicians, Producers/Promoters, Artists, Audiences, Individual Trainers, School Arts Teachers.

D



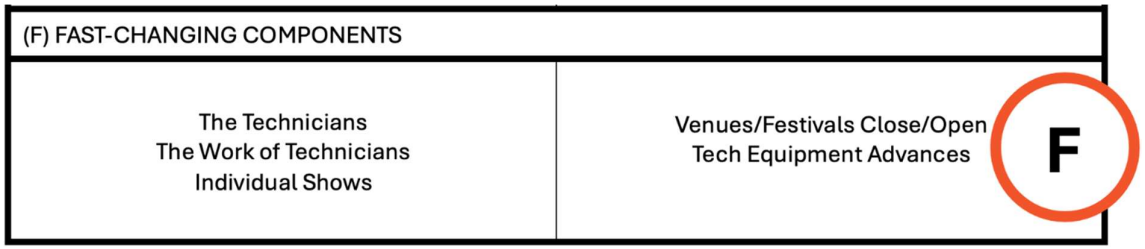
(E) Slow-Changing Components of Your System

When thinking about your system and the problem you want to solve, it's important to understand the slow variables that change gradually over time. Social components that change slowly in your system are:

(1) Governance: The way in which venues, festivals and organisations are governed has not changed much over time.
(2) Overall Culture: Overall, the system has an unhealthy culture (e.g lack of diversity, discrimination against women, substance and mental health issues, work not conducive to family life) that is slow to change.
(3) Individual Attitudes: Although individual attitudes can be quick to change, there are 'old-school' attitudes held by technicians - and 'transactional' attitudes from artists towards technicians - that have been slow to change.
(4) Health and Wellbeing: The health of individual people in the system changes slowly and is affected by other slow variables (culture, attitudes and working conditions)
(5) Remuneration and Working Conditions: Pay and conditions have been relatively static and slow to change.
(6) Career Progression Opportunities: These have slowly eroded over time.
(7) Value/Relevance of the Arts: Society's attitudes towards to arts overall are slow to change.

Ecological/Physical Components that change slowly in your system are:

(8) Existing Infrastructure: Once built, live performance infrastructure (large concert and theatre venues, multi-purpose venues, town halls, bars etc) are slow to change.



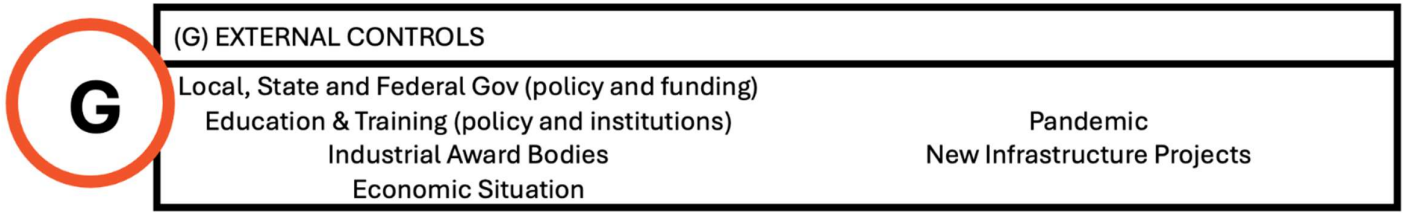
(F) Fast-Changing Components of Your System

There are also components that change relatively fast. For the WA TECH SYSTEM, these are linked to individuals and their work:

- **The Technicians**: Individuals are moving and changing quickly. They move around within the system, they are leaving the system, and they enter and then exit quickly.
- **The Work of Technicians**: The work that Technicians are required to do evolves, changing quickly from venue to venue, project to project and gig to gig.
- **Individual Shows:** Overall, live performance shows are made quickly and are performed in short time frames.

Ecological/Physical Components that change quickly in your system are:

- **Venues/Festival Close/Open**: Across the recent history of your system, openings and closings of venues and festivals has occurred relatively fast.
- **Technical Equipment Advances:** Lighting, sound, AV, and staging equipment continues to improve and advance quickly.



(G) External Controls

External conditions and decision-making that impacts your system.

There are larger scale influences that either constrain your system or foster change.

Local, State and Federal Government policies and funding have both enabled and constrained change.

Venues that are owned and operated by Local Government must operate within the constraints of policies and processes that are not fit-for-purpose for live performance or arts activities. This can result in a lack of understanding and flexibility that impacts the way technical staff are hired, trained and work. To navigate this requires presenters and programmers to be creative in the way they program and present work, often without the technical expertise needed.

The State Government has enabled change by investing increased funds into touring and presenting work in the WA regions. Funding CIRCUITWEST through RACIP and AOIP has resulted in the long-term development of a connected network across the regions and the annual delivery of TechWest. The State Government also operates several venues through the ACT. Through the allocation of funds, governance and management, the State Government and ACT has the potential to both constrain and enable change in WA's Tech System.

The Federal Government has influence through Creative Australia's level of funding to the WA sector and through the advocacy of Creative Workplaces. Additionally, the Australian Skills Quality Authority (ASQA) impacts the structure of training courses offered at both University and TAFE levels. The Jobs and Skills Australia priority list also influences how educational institutions prioritise, and receive subsidies for, specific courses. Over the last two years, the job of 'Performing Arts Technicians' has been classified as 'No Shortage' across the country (except was NSW in 2022). 2024's rating have yet to be released.

(G) External Controls (continued)

The higher **education/training institutions and their policies** (Universities and TAFE) have significant impacts on the pipeline of Technicians. However, the compliance and certification for courses is also heavily regulated by ASQA.

WAAPA offers Diplomas and Advanced Diplomas in Live Production and Technical Services and will offer Certificate IV in Sound in 2025. In 2014, a BA (Performing Arts Production and Design) was added, and in 202,7 this will become a BA (Production and Design). Curtin University currently offers production units as part of its BA (Theatre Arts). Local TAFE courses currently only offer live performance production Certificates in music/sound. These institutions could enable change through stronger partnerships with the industry to co-design fit-for-purpose curriculum (within regulatory constraints) and to provide on-the-job training and mentorship. (North Metropolitan TAFE is exploring offering a Certificate II Creative Industries (Live Production) to be delivered in partnership with venues.) Anecdotally, employers report that with the trend by higher education institutions to Bachelor courses started by NIDA in the early 2000's has resulted in more lighting and sound students pursuing careers as designers, as opposed to technicians, than previously.

Drama, music and dance programs in high school education are also essential to the higher education pipeline. Many individuals develop a passion for the performing arts in school. Individual teachers introducing students to design, production and tech as a potential career, is the start of the pipeline. Greater connection between schools, higher-education and venues, that nurtures interest from teenage students, could foster change.

The **Industrial Award** externally control the conditions that Technicians work under in the live performance sector. The awards currently offer inadequate pay and conditions that have significant negative impacts. Low minimum wage and awards that do not recognise experience and expertise, create a workplace of inequities. Poor working conditions, such as long hours, is leading to burnout and injuries. The conditions set down by the Award are creating issues that undermine the overall productivity and sustainability of the live performance sector, affecting both artistic standards and Technician morale.

There are numerous challenges that Unions and peak bodies face to better these Awards. These bodies have their own resource allocation challenges, due to low membership from the sector overall and specifically Technicians, which reduces their capacity to represent individual workers. The LPA also represents a significant membership of live performance venues and organisations who want to keep Award minimums down due to their own resource challenges. Therefore, negotiations for improvements in Award conditions take a long time and benefits to individuals in the workforce are delayed.

(G) External Controls (continued)

The current **economic situation** has placed significant strain on the live performing arts industry. Reduced consumer spending and tourism impacts ticket sales, while uncertainties deter investment in productions. Significant rising costs of production materials and running costs have compounded the reduced income. These financial conditions are constraining funding for new projects and technological upgrades, affecting production quality and innovation. Live performance faces increased financial pressure, leading to smaller more mobile productions, that reduce opportunities for Technicians.

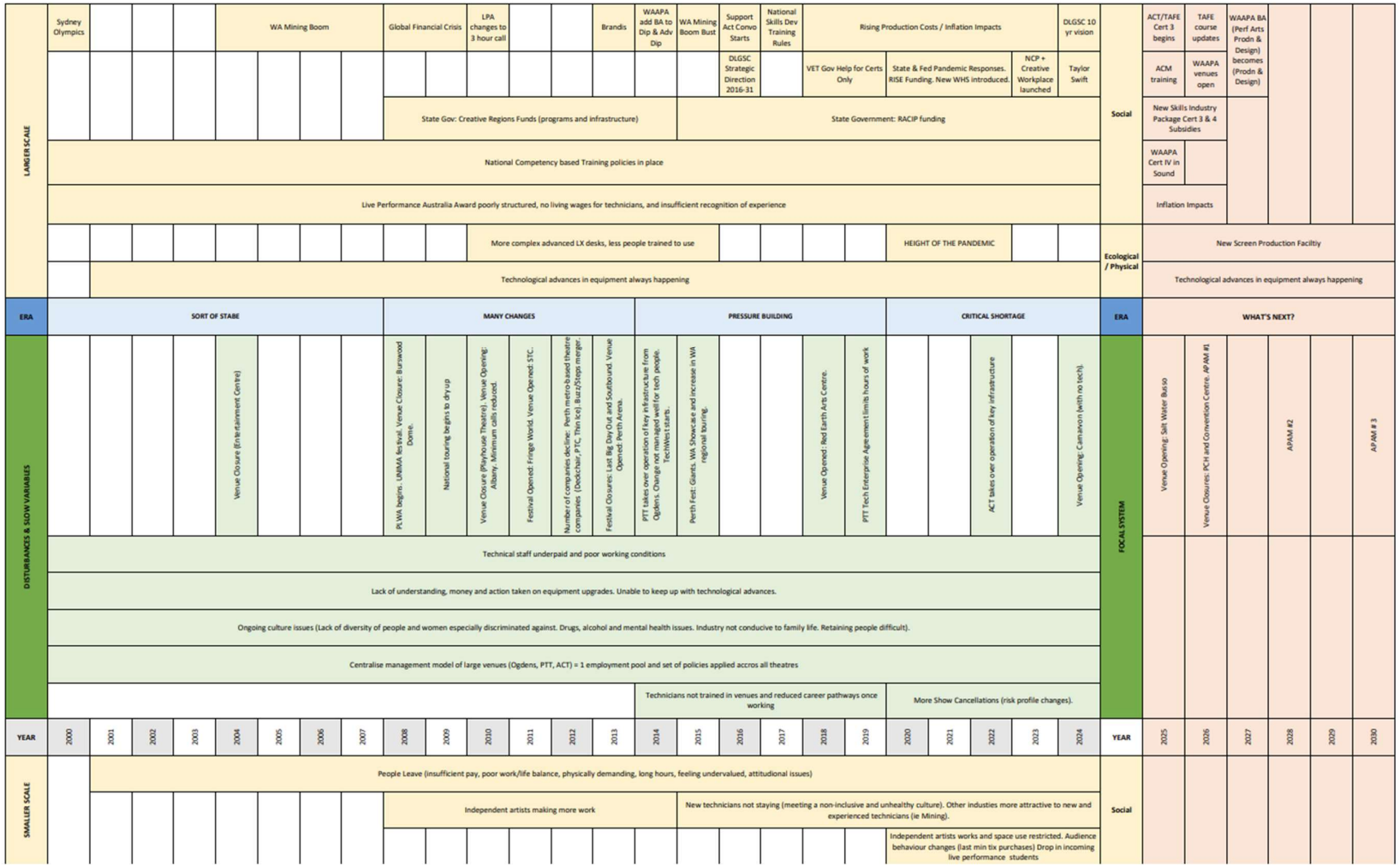
The **pandemic** profoundly altered the entire Australian live performance sector. Lockdowns forced closures and cancellations across the industry. Venues went dark and the work of Technicians was either drastically changed or cancelled. With many Technicians employed casually, this left no recourse for claiming Jobseeker and they needed to find work outside of live performing arts.

Where possible, productions pivoted to digital formats, demanding new technical skills and equipment for live streaming. When venues finally opened to reduced capacity, there were additional safety protocols that reshaped backstage dynamics, with stringent health measures impacting rehearsals and performances.

While the building of **new infrastructure projects** has the potential to enhance cultural activity, there needs to be knowledgeable leadership at the helm and adequate financial support to properly run these new venues. Without performing arts expertise in leadership, the importance of the role of Technicians is diluted. Combined with infrastructure being underutilised and underfunded, skilled personnel are difficult to attract. This is exacerbated by the shortage of Techs generally.

Figure 2: WA TECH SYSTEM Historical Map

Part of constructing the Figure 1 WA TECH SES Map involved gathering information about the history of your system. Below in Figure 2 is a visual representation of that history. This historical map includes the larger, focal, and smaller scales, disturbance events, and eras.



2. SYSTEM DYNAMICS

2.1 The Adaptive Cycle – A model of change

The adaptive cycle describes the four phases of change that systems cycle through over time. The four phases are **growth**, **conservation**, **release**, and **reorganisation**. The adaptive cycle is relevant to both ecological and social systems, and in social systems helps us understand and manage the complexities of social dynamics, governance, and resilience.

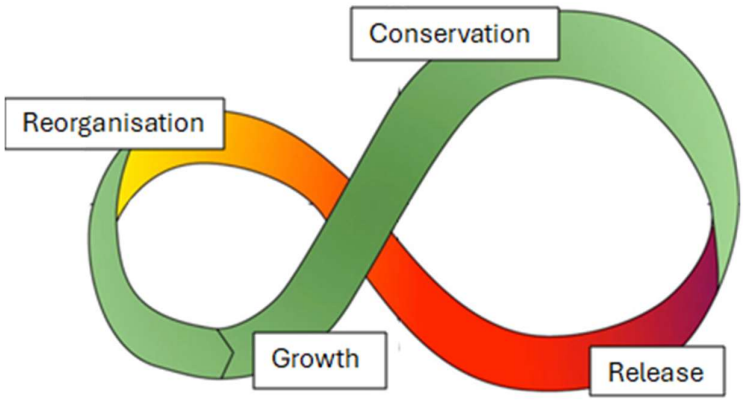
Growth can be rapid and is characterised by the use of available resources. In social systems, growth corresponds to periods of innovation, expansion, and the establishment of new social structures or institutions. In this phase, people capitalise on new opportunities, build networks, and develop capabilities.

Conservation sees the system's structures become more rigid with resources being accumulated and maintained. In social systems, institutions and organisations become more established, formalised, and efficient, leading to greater wellbeing for people. However, this phase can also lead to increased rigidity and resistance to change, as established norms and power structures become entrenched. Bureaucratic growth and the stabilisation of societal norms typify this phase and there is the potential for decreased innovation and adaptability.

Release describes the rapid liberation of accumulated resources due to external or internal disturbances. In social systems, this can be triggered by crises such as economic recessions, political upheavals, or social revolutions. The release phase breaks down old structures and norms, leading to a period of uncertainty and potential chaos. However, it also creates opportunities for significant change and reorganisation.

Reorganisation follows the release phase, and the system enters a period where new structures, processes, and institutions begin to form. In social systems, this is a time of renewal, innovation, and experimentation. New ideas and approaches are tested, and the system explores different pathways for rebuilding and adapting.

The below image is a visual representation of the adaptive cycle.



The WA TECH SYSTEM Adaptive Cycle Story

You can consider the WA TECH SYSTEM's history as an adaptive cycle story. Below is one interpretation of the history:

WA TECH SYSTEM History (since 2000)			
CONSERVATION (DESIRABLE) 	**GROWTH** 	**CONSERVATION (UNDESIRABLE)** 	**RELEASE** 
2000 – 07 Relatively Stable	**2008 - 13** Numerous Venues/Festivals Opening & Closing	**2014 - 19** Relatively Stable with Pressure Building	**2020 - 2023** Pandemic

The WA TECH SYSTEM has undergone a **release** phase since the pandemic. There have been many critical thresholds crossed (see **2.3 Thresholds & Transitions**), that have caused a drastic shortage in Technicians in the live performance sector. Due to the commitment and efforts of multiple parties in the sector, you are currently in a **reorganising** phase. You are collectively working together to address the issues and formulate plans for action.

To address your problem, ***'How can we, as the WA Live Performing Arts Sector, address the need for improved working conditions (remuneration, hours, training, safety) while actively supporting entry, retention and return into the field (mentoring, training, pathways), to ensure a work culture that is inclusive, vibrant and connected to creativity and community?'***, and use the adaptative cycle as a framework to do this, your options from here could be as follows:

WA TECH SYSTEM
Consciously and collectively commit to a **reorganisation** phase, to ensure that you do not recreate the same structures and conditions that have resulted in the current release.
With increased resources, social, physical, financial, you could move quickly from reorganisation into **growth**. But be mindful of how you want to **grow** first and ensure you have the right ingredients.
It is not an option for the WA TECH SYSTEM to enter a **conservation** stage. Growth needs to happen first.
The system has recently experienced a **release** phase which has been cushioned by the stewardship of the many people coming together around the issues. A further controlled release could be used if needed.

2.2 Multiple States

In your system's current state, you have a problem you want to solve. One way of conceptualising this is to consider moving into an alternate desired state.

So, **what does it look like for the WA TECH SYSTEM if your problem was already solved?**

2.2a WA TECH SYSTEM's Alternate State

Your alternate state as imagined by the system stakeholders ...

A (fictional) interview with a Technician.

"It doesn't get any better than working on a show or in a venue as a Tech. What a rockin' profession to be in.

After years of patchy representation, we now have a great advocacy body that is aligned with the work we do on the ground. They smooth over the friction between different groups. They have helped secure the money we needed and the strong partnerships we wanted.

We are part of a fabulous culture with good people and great working conditions. We have flexibility and money, success and drive, and enthusiasm. We love the arts, and we love that we make the magic of performance happen. It's a thriving scene.

Now that we have ironed out the Award we have split shifts. Two complete teams that swing with the same skills and availability. No more 16-hour calls. But TOIL is guaranteed for when we need to put in that bit extra on a gig. There's enough time in schedules for bump in and bump out. Not to mention a 'stop mechanism' that allows crew to break and refresh. Downtime is not a bad word. Finally, we are getting good sleep, and feel rested and energised.

Techs are recognised and our roles are widely understood and valued. We get to move between industry roles easily and our leave entitlements travel with us. Venues and presenters love this because they now have a guaranteed workforce. Both regionally and in metro for shows and community benefit. We love this because there is more security but still with the flexibility that we all enjoy. We have a rewarding pay structure and recognition of our expertise.

This is a real game changer. We are celebrated and respected. We are seen as essential throughout the development and creation process. It has been a big attitude change from producers and promoters too.

Not to mention those great promotional campaigns that routinely run and share the often hidden but exceptional work we do behind the scenes. They have been attracting new people to the industry who might never have known such careers existed.

This is helped by the new training system we have too. One of the best aspects of the job is the training. It's accessible and fit-for-purpose for the industry. It's mandatory across the board for trainees to Heads of Production, but we love it. We get to be on the cutting edge of new technology and systems for our venues and shows.

And we have flexible options to move around the regions. We get to train in different venues and make connections with other Techs. There are heaps better connections between Regional and Metro Techs now.

There are more professional development and career progression opportunities in place. Senior people mentor incoming Techs and train them on the job. Years of experience, expertise and contributions to our positive and inclusive culture are recognised with promotions.

State and Federal Government recognise the A – STE(A)M. The arts pathway journey starts at school, with peer and parental support. The Government acknowledges the Tech skills shortages in the industry and now provides funding support for education.

For young people interested in the work, there is now a pathway. Training Techs start at high school, followed by mentor traineeships and apprenticeships, all coordinated through Tafe and Universities as part of Certificates and Diplomas. Degrees allow for mid-career upskilling.

The venues play a big part in supporting the training and the culture. People running the venues understand the venue. This makes everything so much easier. There is regular maintenance and upgrading of equipment. All of which is aligned with our on the job training. Upper management is willing to listen and engage, streamlining on-boarding and making it easy to employ new staff.

Knowledge gets passed on. We have thriving venues. There is retention of Tech talent in WA. It's great.

Our awesome extended production community hosts the coveted night of the year. The National Technical Awards Night! And Techs and crew sure know how to put on a show and celebrate. It's not just the red carpet treatment, we know how to dress a space and light up the sky too.

And overall, the Government is seriously investing in our culture equivalent to international benchmarks. We have more shows, more engagement with community, and funding for additional touring. Ticket prices stay affordable. Everyone has plenty of disposable income. The recognised value of the arts is making us all feel good.

To be in this job is like finding the big pot of gold at the end of the rainbow."

2.2b What needs to change and the processes that could get you there

In the table below we have summarised your ideas around how to get to your alternate state.

Things that need to change	Processes to get there
Careers, Conditions and Work Culture - Liveable wages underpinned by improvements to the Award(s) - Provide other incentives (food, parking interesting gigs/variety of work, safety, split shifts) - Recruitment processes and on boarding. Including having a critical mass of Techs. - Beter balance between fulltime and casualised workforce. - Bridge generational gap. - Retention - Less silo and more collaborations (between companies/individuals) - People on time ready to work with good self-care - More mutual respect between management, Tech, and creatives - Tech is a respected profession. Attractive to newcomers	Lobbying and Advocacy Processes - Lobbying to support sustainability for the careers of casualised workforce - Increased Union/advocacy representation and negotiation with LPA - Crew association peak group HR Processes - Processes that increase the diversity of the work force. - Create a database of Techs and their qualifications and skills - Succession planning - Bad behaviour not tolerated - Marketing campaign and recruitment drive for Techs and industry Consultation Processes - More and regular sector consultation and alignment and shared vision, to drive culture change - Informal industry get-togethers, such as 'Thirsty Thursdays' Melbourne. - Formal National gatherings, such as National Tech gathering APAX, with facilitated connecting conversations
Sector - The sector has a shared vision (pulling in the same direction) - Better connected sector especially Regional to Metro - Skill recognition across the Tech sector - Tech involved earlier in creative process - Big end of the sector supports small end.	Aligned Action Process - Organisations creating space to breath (focus on training) and keep going (focus on product) - Avoid release with slow coordinated integration of change Large events ticket tax (Taylor Tax) Tech Awards Nights

Education and Training - Streamlined education and career pathway from high school to professional. - More diversity and flexibility on offer for training (including CIV, Dip, Adv Dip, apprenticeships, micro-credentials) - Accessible affordable training, potentially subsidised, including formalised traineeships from certificate III level and above - Robust talent pool	Reorganisation Processes - Regular review of training policies to match the industry need - Industry commitment to employ trainees - Develop on-the-job training programs in the sector that stay ongoing in sector. Including mentoring - Regional training placements
Government - Funding and investment - More engagement from Government - Increase public value of the arts	Lobbying and Advocacy Processes

2.2c How the change impacts stakeholders

In the table below, we have summarised the impacts of your alternate state on your key stakeholders that are most central to your problem.

Key Stakeholders	Impacts for the Stakeholder
Government	There is initial disruption and discomfort as a new model, and greater advocacy for the inclusion of the arts as a core value of Government, is needed. Once policies and investment are in place, the Government may experience the positive impacts of an economy and tourism boost and an improvement in cultural diplomacy.
Students	They have an increased choice of training programs and get more practical experience across more areas. With the increase in student cohorts, they experience more connections with new peers. They may also experience increased competition for traineeships and on-the-job placements.
The Sector	Organisations and venues in the sector experience an increase in shared awareness and a greater sense of working together. The sector has access to a more qualified workforce that can produce higher quality works, but are producing less overall. There are more works and employees who enjoy touring opportunities. There is an initial struggle and discomfort within organisations, venues and arts leaders and managers on how to strike a balance between raising quality and skill level and the financial resources this takes. However, a more highly skilled workforce and connected sector can find this balance. Organisations are better resourced and enjoy the ability to try new things and connect more with each other (metro/outer metro/regional venues and orgs) and with audiences. Grassroots operations may struggle with rising costs and increased workforce expectations (pay, conditions, culture). There is a potential for a further divide between the small and top ends and the industry to become more competitive.
Techs	Individual Techs have a healthier lifestyle (physical, mental, social) and their families are happier. With increased contingency and diversity in the system, there are more Techs available with the appropriate expertise to support and cover for each other when illness strikes, and to reduce long hours.

2.3 Thresholds and Transitions

Thresholds are critical points within a system where a small change can lead to a dramatic shift in the state of the system. In social systems, these thresholds are often influenced by a combination of social, economic, political, and environmental/physical factors.

There are 15 critical thresholds for the WA TECH SYSTEM that have been identified through the assessment:

- Critical shortage (number and diversity) of qualified Techs
- Experienced Techs leave the industry
- Burnout and extended sick leave increase
- Critically low on-the-job mentorship and training opportunities
- Increase, in number and severity, of safety incidents
- Increase in cancellations and scaling-down of live performance works
- Critically low, in number and diversity, of live performance works and events being presented
- Necessary infrastructure/equipment upgrades don't happen
- Lack of attraction and retention of new Techs
- Lack of Adaptive Governance and poor General Resilience
- Higher education/training for Techs cease
- Arts education and programs in schools cease
- Award remuneration and conditions stagnate
- Society does not value the arts
- Audience engagement in live performance drops to critical level

Transitions between states can be slow and gradual, and at other times abrupt. Being aware of critical thresholds can provide you with advance warning of impending change, as well as opportunities for preventing undesirable shifts between system states. In addition, it can provide you with opportunities to create and facilitate deliberate transformations to a new system state.

Without knowledge of critical thresholds, people become aware of them only once they have been crossed and system services disappear. And there is often no obvious pathway to returning to the way things were.

3. THE INTERACTIONS

In systems thinking, managing your context and problems requires an understanding of **interactions.** This includes the interactions between system scales, how interactions can have a cascading affects and accelerate change; and how the components of both general and specified resilience interact to maintain your identity and allow you to change.

3.1 Cross-Scale Interactions

What happens in a system at one scale can affect what happens at other scales. Managing your system and problems requires an understanding of what is happening at multiple scales. This includes how the focal system responds to constraints imposed from larger scale systems or to innovations from nested smaller scales.

In the table over page, we have separated out adaptive cycles at your larger, focal, and smaller scales. An understanding of cross-scale interactions can provide you with more options to see where the work could be done to solve your problem and make the change you want.

Figure 3: WA TECH SYSTEM Adaptive Cycle Across Scales

<table>
<tr><th colspan="2">LARGER SCALES</th></tr>
<tr><td>Reorganisation
Review of training policies to match need
More diversity and flexibility in education/training
Big end supports small end (Taylor ticket-tax)</td><td>Conservation
The Arts are valued and celebrated
Streamlined and fit-for-industry education and career pathway (high school to professional)
Accessible and affordable training
Regular review of training policies
Regular review and update of Award(s)</td></tr>
<tr><td>Growth
Government increases engagement with the Arts
Government increases funding
Ticket-tax re-invested into local/smaller sector
Increase union/advocacy and representation
Improvements to the Award(s)</td><td>Release</td></tr>
<tr><th colspan="2">WA TECH SYSTEM FOCAL SCALE</th></tr>
<tr><td>Reorganisation
Aligned action processes
Slow and coordinated integration of change
Organisations create space for training
Test on-the-job training/mentorship programs
Tech skill recognition across sector
Tech involved earlier in creative process
Employers provide other incentives (food etc)
Review and revise HR processes
Re-balance full time and casual workforce
Bridge generational gap
Less silos and more collaboration</td><td>Conservation
The sector has a shared vision
Robust/critical mass in Tech talent pool
Tech is a respected profession
Diverse and happy workforce who have holidays
On-the-job placements/mentorship embedded
Regular sector consultations
‘Susan Clarke’ Tech Awards nights
Strong connections across state</td></tr>
<tr><td>Growth
Slow and coordinated integration of change
More lobbying and advocacy to larger scale
Regional Tech training placements offered
Increase in on-the-job training/mentorship opps
Increase connections regional/metro
Increased retention of Techs
National/formal Tech gathering</td><td>Release</td></tr>
<tr><th colspan="2">SMALLER SCALES</th></tr>
<tr><td>Reorganisation
Tech involved earlier in creative process
Increased mutual respect (management, techs and creatives)</td><td>Conservation
Liveable wages and safer conditions
Embedded informal networks
Well-rested and happy people
New/experienced Techs work well together
Enthusiastic Techs & Audiences</td></tr>
<tr><td>Growth
Growth of informal Tech networks
Increase in collective action</td><td>Release
Bad behaviour not tolerated</td></tr>
</table>

3.2 Interacting Thresholds and Cascading Change

The concepts of interacting thresholds and cascading change help explain the complex dynamics that occur when multiple scales interact and lead to significant and sometimes unpredictable outcomes, including sudden change and transformative shifts.

When multiple **thresholds** interact, the dynamics become even more complex and can lead to cascading changes.

Cascading change refers to a process where an initial shift triggers a series of subsequent changes across different parts of the system. This can happen when a threshold is crossed at one scale, leading to shifts in other scales.

On the next page, **Figure 4: WA TECH SYSTEM Threshold Map** gives a visual illustration of how your slow variables, thresholds, multiple scales, and disturbances interact to potentially cause cascading change.

As seen in **2.3 Thresholds and Transitions**, there are 15 critical thresholds for the WA TECH SYSTEM that have been identified through the assessment:

- Critical shortage, in number and diversity, of qualified Techs
- Experienced Techs leave the industry
- Burnout and extended sick leave increase
- Critically low on-the-job mentorship and training opportunities
- Increase, in number and severity, of safety incidents
- Increase in cancellations and scaling-down of live performance works
- Critically low, in number and diversity, of live performance works and events being presented
- Necessary infrastructure/equipment upgrades don't happen
- Lack of attraction and retention of new Techs
- Lack of Adaptive Governance and poor General Resilience
- Higher education/training for Techs cease
- Arts education and programs in schools cease
- Award remuneration and conditions stagnate
- Society does not value the arts
- Audience engagement in live performance drops to critical level

Each key threshold is linked to one or more of your slow-changing components (or slow variables) in your system. These gradual changes in your slow variables over time can push your system closer to a threshold.

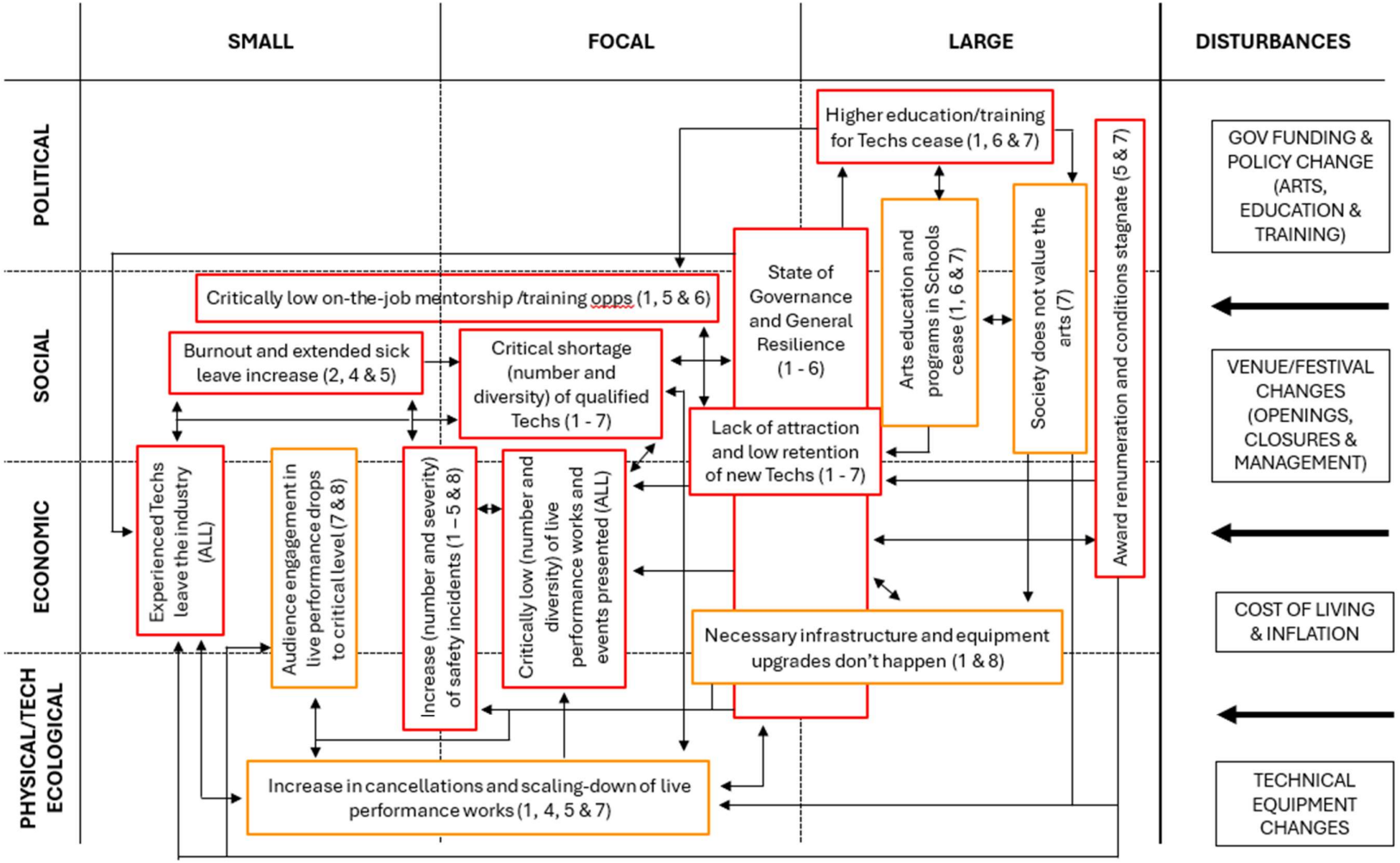
As seen in **Figure 1: WA TECH SES Map**, there are slow changing components that can – and have – pushed your system closer to a threshold:

(1) Governance: The way in which venues, festivals and organisations are governed has not changed much over time.
(2) Overall Culture: Overall, the system has an unhealthy culture (e.g lack of diversity, discrimination against women, substance, and mental health issues, work not conducive to family life) that is slow to change.
(3) Individual Attitudes: Although individual attitudes can be quick to change, there are 'old-school' attitudes held by technicians that have been slow to change.

(4) **Health and Wellbeing**: The health of individual people in the system changes slowly and is affected by other slow variables (culture, attitudes and working conditions)
(5) **Remuneration and Working Conditions**: Pay and conditions has been relatively static and slow to change.
(6) **Career Progression Opportunities**: These have slowly eroded over time.
(7) **Value/Relevance of the Arts**: Society's attitudes towards to arts overall are slow to change.
(8) **Existing Infrastructure**: Once built, live performance infrastructure (large concert and theatre venues, multi-purpose venues, town halls, bars etc) are slow to change.

These numbered slow variables are each linked to a threshold in **Figure 4** below.

Figure 4: WA TECH SYSTEM Threshold Map



3.3 General Resilience

In the context of SES, **general resilience** refers to the overall capacity of a system to maintain essential functions and adapt to disturbances across a wide range of conditions and scales. It encompasses the system's ability to absorb shocks, reorganise, and persist while retaining key structures and functions. General resilience is dynamic. It has inherent flexibility to navigate uncertainty and unpredictable challenges, and while doing so, sustain system services and developments.

While general resilience pertains to the overall capacity of the system, **specified resilience** focuses on the resilience of targeted elements, processes, or functions within the system. Specified resilience zooms in on system components and highlights the varying degrees of resilience these components exhibit.

By focusing on specified resilience, you can identify priority areas for intervention, allocate resources effectively, and strengthen the overall resilience of your SES against identified risks.

An important consideration regarding resilience, is that resilience may be desirable or undesirable depending on your context. This represents one of the important decision points for leaders. Sometimes we want to be resilient. And sometimes what is resilient is undesirable and we want it to change.

The dynamic nature of resilience can be best understood through the interactions of the five factors that confer resilience. These concepts and introduced below.

3.3a Modularity and Connectivity

Modularity and connectivity are two of the factors that confer resilience. Although independent factors, they often interrelate, and in doing so define important resilience qualities of a system. For this reason, we discuss them together.

Modularity refers to the degree to which a system's components are compartmentalised into semi-independent units. These modules interact more strongly within themselves than with other parts of the system. Emergence of modular structures allows for the reorganisation of components and functions in response to disruptions. This serves to contain the impact of disruptions within discrete modules, preventing disruptions from cascading throughout the entire system.

Systems with modular structures are better able to absorb shocks, adapt to changes, and sustain functions and services.

Connectivity refers to the patterns and strengths of interactions and linkages between components within a system, and between the system and its external environment.

In social systems, connectivity encompasses the networks of relationships and communication pathways within and across communities. It influences how resources, such as materials, energy, information and innovations, as well as disturbances, flow through a community.

Effective SES management seeks an optimal level of modularity that allows for discrete innovation and learning within modules, while also maintaining an optimal level of connectivity to ensure robust linkages.

3.3b Feedbacks

In social systems, **feedbacks** are critical processes established through reciprocal interactions. Feedbacks are system outputs that are fed back into the system as inputs. They influence subsequent behaviour and dynamics.

These feedbacks can be either positive (reinforcing) or negative (balancing). These names do not correlate with desired or undesired outcomes. Rather, they differ based upon how inputs and outputs act upon the total system.

In effective SES management, it is necessary to understand and nurture your capacity to leverage both positive and negative feedback mechanisms. You need the ability to strengthen and balance feedbacks that promote stability, while dampening feedbacks that might lead to undesirable regimes or hamper desirable system shifts. You also need the capacity to harness amplifying feedbacks when you are working towards transformational change.

3.3c Reserves

Reserves within social systems are the accumulated resources, assets, and capacities that a system can draw upon. Reserves take various forms and are critically important at many different junctions. They provide the necessary capacities to absorb shocks and act as buffers against disturbances. They help you adapt to changing conditions, are essential when recovering, and provide security to sustain long-term well-being.

Management needs to safeguard and enhance reserves to ensure they are available when needed.

3.3d Diversity

The cultural discourse around diversity, equity, and inclusion is at the forefront of many conversations in the arts sector. We want to make a clear distinction between these conversations and the way diversity is defined in SES. To do this, we will use the analogy of a live performance event.

Diversity in social systems refers to the variety and variability of components. This is characterised by diversity in cultural practices, institutions, knowledge systems, social roles, and organisational forms. In a performance setting, this could be represented by the different art forms and respective artists that perform in a show, and production and crew that stage a show.

Importantly, this diversity provides alternative pathways for adaptation and response. It enhances a system's overall flexibility and robustness. This means that when a disruption occurs, such as a venue being shut down because of an emergency, there are numerous different ideas and capacities available to successfully perform the show as scheduled in a different venue. The system service is maintained.

In addition, diversity provides **redundancy**, which is crucial for system stability. Redundancy can also be thought of as contingency. Redundancy ensures that essential functions can be maintained even when parts of the system are disrupted. In theatre, understudies or deputies

are a type of redundancy. When musicians get sick and cannot perform, deputies can jump in. The redundancy in the deputy function has provided an option to compensate for the loss in one part of the live performance system, in this case the band going down. Redundancy has ensured overall system functionality.

In short, diversity means that there are many sets of actors with unique combinations of skills that interrelate to perform system services. When one set of actors in your system cannot perform system services, others in the system can compensate and system services are maintained. Having this overlap of skills in your system is called redundancy.

While diversity is generally beneficial, it also presents challenges that need to be managed, including:

1. conflict and tension (if not management appropriately with governance mechanisms);
2. equity and inclusion (marginalisation of groups can undermine the resilience of the entire system); and
3. integration and communication (crucial for harnessing the benefits of diversity).

To enhance diversity in social systems, several strategies can be employed, including:

1. promoting inclusive governance (that encourages broad participation);
2. supporting cultural practices (which strengthens social cohesion);
3. encouraging innovation and learning (which integrates diverse ideas and practices); and
4. building social networks (fostering connections among different groups).

3.3e Openness

Openness refers to the extent and manner that a social system interacts with external influences, including other social systems, ecological systems, and global processes.

Openness in social systems facilitates the flow of information, resources, and innovations. By engaging with external ideas and practices, social systems can enhance their adaptive capacity and resilience.

4 PEOPLE AND GOVERNANCE

4.1 Adaptive Governance and Institutions

Adaptive governance acknowledges that social systems are constantly evolving. In social systems, **adaptability** emphasises flexibility in governance and decision-making processes that can respond promptly and effectively to emerging issues. As context changes and new problems arise, governance needs to manage intertwining social, technological, and ecological dynamics. Organisations need to adjust and transform their structures, functions, and behaviours based on real-time feedback and monitoring, while also maintaining services in a sustainable way.

For many people governance is something that happens in the background. A tapestry of rules, rights, and regulations that are taken for granted. But governance operates at multiple scales and involves citizens, private and public organisations, and governments.

Despite its importance, achieving adaptability in an SES faces challenges, including:

- **Complexity and uncertainty**. An SES is inherently complex, with unpredictable interactions and feedbacks. Uncertainties in future conditions and impacts complicate adaptive decision-making.
- **Institutional barriers.** Power imbalances and short-term political cycles can create institutional inertia and resistance to change that hinder adaptive governance and management practices.
- **Cross-scale interactions**. Adaptability often involves interactions across different scales – from local to regional to global. While these interactions enable systems to leverage resources from broader networks, it is important to maintain local autonomy and responsiveness.

The three key areas of adaptative governance (broad participation, polycentricity and distributive governance) are explained below.

4.1a Broad Participation

Adaptive governance emphasises the need for governance structures and processes that are flexible enough to accommodate diverse perspectives. **Broad participation** is inclusive and involves transparent decision-making processes with informed and well-functioning groups.

Broad participation processes should be aimed at building trust among stakeholders and fostering a shared commitment - fundamental ingredients for collective action. Encourage participatory processes, in which stakeholders co-design and co-implement policies and management strategies. Collaborative practices that integrate diverse knowledge systems are central to adaptive governance.

4.1b Polycentricity

In **polycentricity**, decision-making authority is distributed across multiple interacting governing bodies to support collective action.

Such polycentric systems are made up of organisations of small, medium, and large-scale democratic units. Each of these units exercises considerable independence to make and enforce rules within a circumscribed scope of authority.

The strength of polycentric governance systems is that each of the individual units has considerable autonomy to experiment with diverse rules and novel approaches. This supports rapid feedback and the capacity to learn quickly from experience.

In contrast, single governance units with very large remits can often respond inadequately to challenges. This is because a single, dormant system of governance inhibits learning or rapid change.

In general, polycentricity poses many challenges for individual arts organisations. Those organisations who conceptualise their focal system as broader than their organisation (e.g. that their system includes other individuals and formal and informal institutions and groups) are more able to participate in polycentric governance for the benefit of their systems.

4.1c Distributive Governance

In **distributive governance**, decision-making is passed down to the level in the system where it is most effectively dealt with, and this level may well change as circumstances change. This may involve the need for new institutional and organisational arrangements and new management policies.

Given the inflexible timelines of funding rounds and production schedules, arts organisations can find distributive governance challenging. Sometimes the decision needs to be made now and leaders can be too stretched to also manage distribution of the decision-making process.

In addition, leaders are often sandwiched between the Board and staff with no buffer to the day to day running of the organisation. They are across all activity and are most likely the go-to for challenging questions.

4.2 Leadership

The leadership components of SES thinking align with the science of leadership – which speaks to the importance of values, context specificity, and ability to work collaboratively with people.

To be effective in leadership of a complex system these questions need to be asked in relation to the larger, focal and smaller scales and are best answered through involving a wide range of stakeholders.

(1) Decision Making

Who are the formal and informal institutions and individual people who are making decisions in relation to my problem?

Know who needs to be in the focal system that surrounds your problem. Understand what sort of decisions they have the remit to make, who they make these decisions with, and the degree of flexibility they have in how they make decisions.

(2) Power Dynamics

What difficult conversations need to happen and be heard at what levels?

Don't shy away from the difficult conversations. It is your responsibility as a leader to be able to sit in the discomfort of such conversations and to keep advocating for the best decision.

(3) Responding to Change

Who might help enable change to help solve the problem?

You don't lead alone. Leaders bring people together in the pursuit of a common goal.

(4) Learning

Where does learning need to occur that will help solve the problem?

Have the humility to learn from experiences, both successes and failures. Have the compassion to help others learn.

(5) Rules

What rules and enforcement mechanisms need to be updated or set up?

Hold your ground and uphold the identity and values of your organisation. Be clear on what is okay and what is not okay.

4.3 Social Networks

Managing for a resilient SES requires cooperation among stakeholders in your system. This cooperation can be facilitated by an understanding of the social relations among the stakeholders by examining **social networks**. The structural characteristics of a given network can influence system dynamics and management outcomes.

There is no optimal structure for a social network. Different network characteristics facilitate different processes that are important at different stages of a governance process. Depending on the specific challenges facing your SES, some network characteristics may be more beneficial than others for influencing the adaptive capacity of the system.

Networks refer to the set of relationships or ties among actors (such as individuals, organisations, or communities) that are characterised by interactions, flows of information, resources, and influence. These networks can range from informal social ties within a community to formal organisational structures or even trans-national collaborations.

Network analysis reveals these structures and patterns, and the effects of the relationships and connections of influence.

Network analysis in SES faces challenges such as data availability, the dynamic nature of networks, and ethical considerations related to privacy and confidentiality. In addition, interpreting network structures requires contextual understanding of local dynamics, power relationships, and cultural factors that shape interactions.

5. TAKING ACTION

5.1 Synthesising Assessment Findings

The resilience assessment framework guides a process of building knowledge and understanding of your system, its dynamics, interactions.

It's important to now have a moment to reflect on the information the framework provides so that you can formulate your own concept of what resilience and sustainability means for your context and purpose. And then decide what actions to take. This will take reflection and time.

5.2 Resilience-Based Stewardship

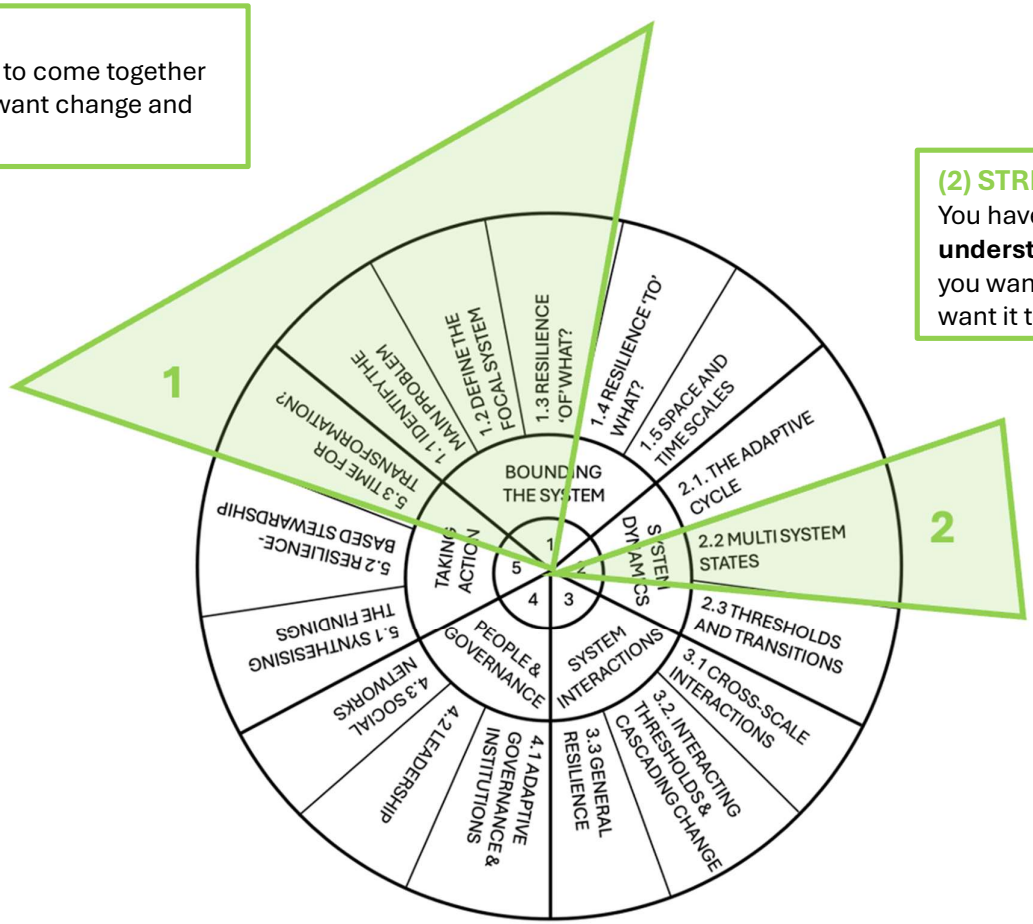
This assessment aims to give you the knowledge, tools, and mental model to assist you in **resilience-based stewardship.**

The overarching goal of resilience-based stewardship is to sustain the capacity of your system to provide benefits to society. The questions of which benefits and to who the benefits flow is fundamentally important and should be kept in constant focus.

After zooming in to each component of the resilience assessment, we will now zoom out. In the following Figures 5 & 6 you will see how the framework highlights your system's strengths (where you are already doing the work well) and opportunities (where you can do some work to move towards solving your problem and enhancing your system's health) and how these are inter-linked.

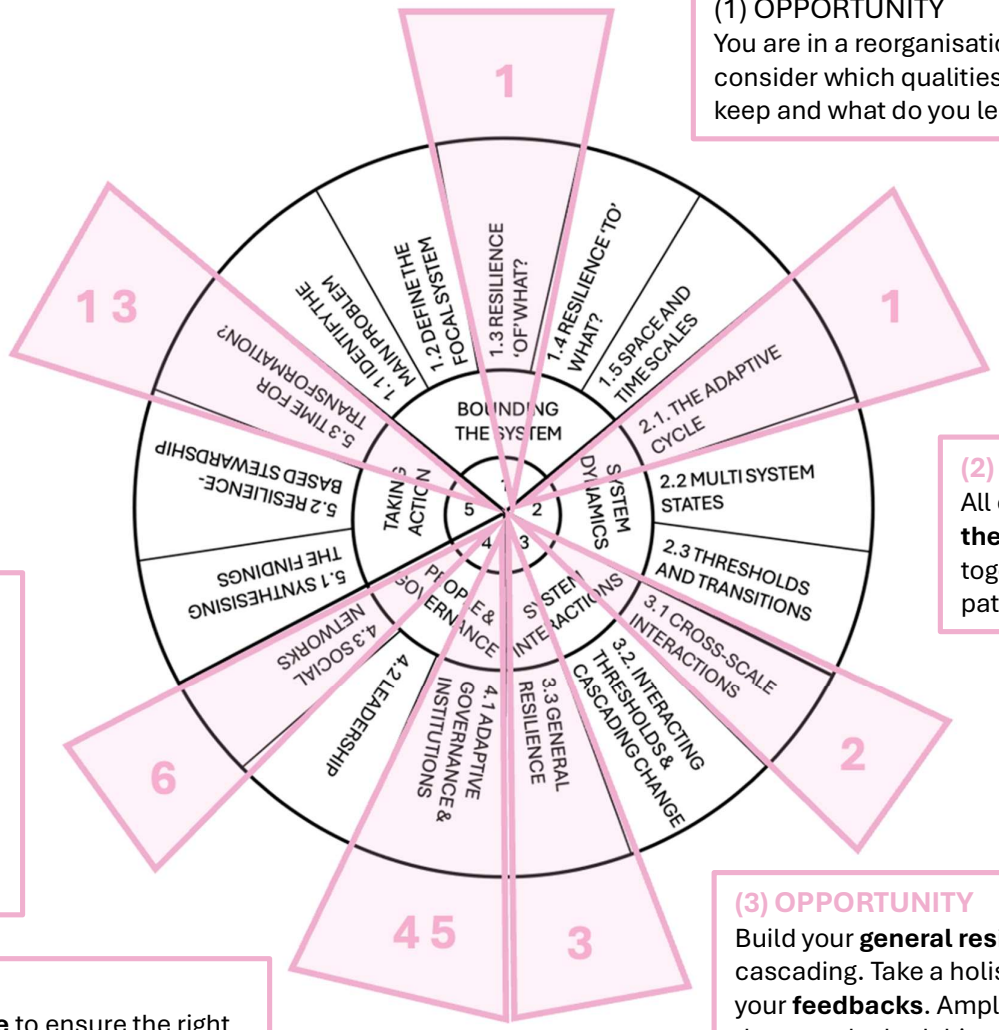
Figure 5: WA TECH SYSTEM Strengths

(1) STRENGTH
You have strong **willingness** to come together and solve the problem. You want change and know what is at stake.



(2) STRENGTH
You have a **shared understanding** of where you want to be and how you want it to be.

Figure 6: WA TECH SYSTEM Opportunities



(1) OPPORTUNITY
You are in a reorganisation phase. In this phase, consider which qualities of your system you want to keep and what do you leave behind

(2) OPPORTUNITY
All organisations **across all the scales** need to work together to improve training pathways and retention.

(3) OPPORTUNITY
Build your **general resilience**. Your thresholds are cascading. Take a holistic approach. Understand your **feedbacks**. Amplify the good things and dampen the bad things for culture change. Increase your **diversity** and ensure you have contingency. You need equity and inclusion and more people.

(4) OPPORTUNITY
Utilise **distributive governance** to ensure the right people have the power to make decisions at the most appropriate level.

(5) OPPORTUNITY
Practice **polycentric governance.** You need to be responsive to your own contexts and challenges, and proactively share learnings to improve the system. Keep doing **broad participation** as part of the process of change.

(6) OPPORTUNITY
Develop and strengthen your Tech **social networks**, both formally and informally.

5.3 Time for Transformation?

Is transformation of your focal system desirable or necessary?

Transformation can be considered necessary when existing social, ecological, or economic structures become untenable.

Important considerations regarding to who transformation is desirable must be addressed.

Your level of **transformability** will also be enabled by the connections you have between your focal scale and larger scales, and in how you are nurturing and creating options for change at your focal scale and within your smaller scales.

SES Theory – Words of Wisdom

After you've read this report and decided what you might like to do next, SES theory has a few words of wisdom to offer.

SES theory actively denies that there is a right and wrong, good, or bad. Everything is in context. Your choice for action is entirely in your hands.

Change is uncertain. There are implications of initiating transformative change. You need to contend with the potential that the process may be influenced by other interests and agendas.

Change is a process that is resource heavy and happens over time. It's important to be compassionate and look after the people in your system and the world around you.

Appendix: About The Resilience Assessment Framework

We (AFOCAL) applied a Resilience Assessment Framework to undertake sector consultation and complete this report with CircuitWest.

The resilience assessment is constructed around the concept of a **social-ecological system (SES)**. This term is used to emphasise that the systems we live and work in have multiple integrated elements, in which cultural, political, social, economic, ecological, technological, and other components interact.

With its aetiology in ecological sciences, SES thinking emphasises the "humans-in-nature" perspective in which ecosystems are integrated with human society. We acknowledge that many of our social or cultural institutions do not have strong ecological remits or connections. However, we believe that the philosophical underpinnings of SES theory must be present in how we think about our actions and their impacts in society and the world.

At a fundamental level, the principle of being in reciprocal relationships with the natural world and our fellow humans is central to wellbeing and sustainability. This in contrast to the extractive priorities of industrialisation, which can dominate and restrict much of our thinking and set the conditions for unsustainable practices.

With this principle in mind, we outline two important concepts that underpin SES theory – resilience and sustainability.

Resilience refers to the magnitude of change or disturbance that a system can experience without shifting into an alternate state that has different properties and provides different system services**.**

Sustainability refers to the capacity of a system to persist over time, maintaining essential functions, diversity, and resilience in the face of internal and external changes and challenges. It involves balancing social, environmental, and economic dimensions to ensure that present generations can meet their needs without compromising the ability of future generations to meet their own needs.

Sustainability in SES theory emphasises adaptive governance, stewardship of resources, equitable distribution of benefits, and resilience-building practices that support long-term well-being and system health.

This is a considerable number of responsibilities to hold all at once and is where a systems thinking approach is important. A systems thinking approach is holistic and does not isolate these responsibilities but focuses instead on how key components contribute to the integrity of the whole system.

For this reason, SES thinking is invaluable as a **mental model** for leaders. Mental models serve as a foundation for leaders when they need to assess situations, make decisions, anticipate outcomes, and formulate strategies. In short, mental models help simplify complex information, navigate uncertainty, and organise knowledge.

6. Thank you

Thank you to the committed stakeholders who contributed their time, experience and expertise in the lead up to and in the day-long meeting at Subiaco Arts Centre held on 27 May 2024, that contributed to the discussion in this report.

Hayley Jane Ayres	360 Artist Logistics	Janis Carren	CEO, ACT
Brad Matthews	Technical Services ACT	Drew Dymond	Albany Ent Cent, ACT
Murray Johnstone	Arts Centre Melbourne RTO	Katie Moore	Black Swan State Theatre
Fiona de Garis	Bunbury Regional Entertainment Centre	Jared Ross	Bunbury Regional Entertainment Centre
Tania Hudson	Chamber Culture & the Arts	Nick Maclaine	CircuitWest
Scott Adam	NM TAFE	Neil Colliss	CMI Music & Audio
Phil Bradley	Crown Theatres	Stephen Carr	Curtin Uni /Roleystone Theatre
Chris Donnelly	Independent Artist & Technician	Mark Haslam	Independent Artist & Technician
Karin Burrill	DLGSC	Nikki Miller	DLGSC
Bec Sheardown	DLGSC	Ann-Marie Ryan	Future Now
Lewis Johnson	Goldfields Art Centre	Terry Wedding	John Curtin School of the Arts
David Rayner	Perth Audio Visual	John Carter	Perth Festival
Shona Treadgold	Perth Festival	Alan Burke	Londoner Macau
Sebastian Marks	Perth Symphony Orchestra	Jaylon Tucker	Freelance Sound Engineer
Justin Larkin	Queens Park Theatre, Geraldton	Luke Cowling	WAAPA
Jason Glenwright	WAAPA	Jason Garbenis	WAAPA
Peter Jago	Spirited Thinking	Chris Scott	Crown Theatres
Philippa Maughan	CircuitWest		

Thank you also to the Presenter Association Representatives that have shared their experiences and initiatives.

Patrick McCarthy	VAPAC	Suzan Williams	Stage Queensland
Melenie Stevenson	VAPAC	Katherine Connor	PAC Australia