

8 May 2020

Mr Peter Russo MP
Chair
Legal Affairs and Community Safety Committee
Parliament House
George Street
BRISBANE QLD 4000
Email: lacsc@parliament.qld.gov.au

Dear Mr Russo

Thank you for your letter of 29 April 2020 inviting the Electoral Commission of Queensland (ECQ) to provide a submission to the Legal Affairs and Community Safety Committee's (the Committee) *Inquiry into the Electoral Commission of Queensland's online publication of preliminary and formal counts of the votes cast in the local government elections and state by-elections held 28 March 2020*.

As requested, please find enclosed the ECQ's submission to the Committee's inquiry. As you are aware, the ECQ will be providing a briefing to the Committee on Monday, 11 May 2020 to support the conduct of the inquiry.

I trust this information is of assistance. Please don't hesitate to contact the ECQ should you require any further information.

Yours sincerely



Pat Vidgen PSM
Electoral Commissioner

Electoral Commission of Queensland

Submission to Legal Affairs and Community Safety Committee

Inquiry into the Electoral Commission of Queensland's online publication of preliminary and formal counts of the votes cast in the local government elections and state by-elections held 28 March 2020

The Electoral Commission of Queensland (ECQ) welcomes the opportunity to provide the Legal Affairs and Community Safety Committee (the Committee) a submission on the *Inquiry into the Electoral Commission of Queensland's online publication of preliminary and formal counts of the votes cast in the local government elections and state by-elections held 28 March 2020*.

The following submission will assist the Committee make an informed assessment of all the factors contributing to delays in displaying vote counts on the ECQ website following the 2020 local government elections and State by-elections (the 2020 elections). To ensure the Committee is able to consider these matters with all available facts, the ECQ will provide an overview of factors affecting delivery of the 2020 elections, including implementation of a new Election Management System (EMS), its development and project governance, the technical complexities of implementation prior to the 2020 elections, external factors influencing development, and the solutions and contingencies the ECQ implemented. The ECQ will also provide the Committee an overview of the short-term processes implemented to resolve the delays to the display of vote counts immediately following the elections as well as the long-term solutions being implemented for the State general election in October 2020.

At the outset, the ECQ emphasises to the Committee that it takes the delay in publishing election results extremely seriously and acknowledges that this had an unacceptable impact on the transparency of reporting of results on election night. All issues that contributed to this situation are being addressed with the utmost priority to ensure they are rectified prior to the State general election on 31 October 2020.

The 2020 elections were delivered in extraordinary circumstances, which affected the conduct of an already complex logistical undertaking involving thousands of staff and venues, and millions of ballot papers and Queensland electors across the state. Election delivery is supported by a range of technological solutions, and for the 2020 elections the ECQ operationalised a new EMS. The EMS is necessarily a complex system reflecting the complexities of Queensland electoral law, but provides an integrated solution supporting most administrative processes required to conduct elections – mainly through provision of a single source of truth. As with any new IT system, there have been risks and complexities associated with implementation of the EMS. However, the majority of the EMS functionality was successfully developed and delivered to support the conduct of the 2020 elections. Further system development and refinement is continuing in line with planned project delivery to support the conduct of the State general election.

It is also important to note that the delays to the display of the vote count did not impact on the progress, integrity or accuracy of the vote counting process. This process is conducted manually by hand under the control of the relevant Returning Officer and/or polling booth supervisor for the specific local government area or State electoral district and was not affected by the delay in result publication.

The submission covers the following key areas:

- Context – 2020 election period
- Development of the EMS
- Functions of the EMS
- EMS delivery and governance
- Election results website
- Election night publication of results
- Post-election publication of results
- Process for vote counting
- Planning for State general election, and
- Conclusions.

Context – 2020 election period

The 2020 elections were delivered in a dynamic environment, heavily impacted by a number of planned and unforeseen factors.

- The emergence of the COVID-19 global pandemic following the commencement of the election period required a rapid and drastic response to ensure Queensland electors, candidates, scrutineers, campaign workers, and ECQ staff and contractors were able to exercise their right to participate in public life safely, and work in a COVID-safe environment.
- The development and implementation of a new EMS for the ECQ.
- The simultaneous conduct of two State by-elections for the electoral districts of Currumbin and Bundamba.
- The commencement of legislative amendments arising from the Operation Belcarra reforms on 20 January 2020. These imposed additional requirements for local government candidates to disclose electoral gifts and expenditure and provide detailed nomination information. The ECQ subsequently needed to amend a range of operational procedures and change its business process and practice and related EMS functionality. In addition, significant work was also required on the Electronic Disclosure System (EDS) to ensure it was fit for this purpose.

The ECQ planned over a period of two years to deliver the 2020 local government elections. Planning and preparation included consultation with all 77 local governments, detailed budgeting, resource allocation, logistics planning, development of approximately 40 discrete project plans, systems development, procurement and the recruitment and training of up to 10,000 temporary election staff. The ECQ leased over 1100 polling booths and around 170 early voting centres in preparation for the 2020 elections, most of which also served as offices for Returning Officers.

Returning Officers are responsible for the delivery of the election for a local government area. These local government areas range from small Indigenous communities of less than 300 enrolled citizens, to large metropolitan divided councils or state electoral districts with over 30,000 electors per division or district. There were over 140 Returning Officers employed in the months preceding the Notice of Election following a merit-based recruitment process aligned with the Queensland Government's recruitment policies.

For the 2020 elections, the ECQ initiated preparation of a service plan that set out the planned service delivery model for the local government elections to provide greater certainty to stakeholders and electors about the election timetable and services that would be delivered. Additionally, the ECQ prepared a separate service plan for the Aurukun Shire Council elections to reflect the additional service offerings and measures implemented to meet the needs of that community for the elections. The [2020 Local Government Elections Service Plan](#) and the [Aurukun Shire Council Election Service Plan](#) are publicly available on the ECQ's website.

With the rapid escalation of COVID-19, a high degree of uncertainty and extreme risk were introduced to the planning process and the ECQ had to significantly redesign its service delivery model. The election that the ECQ had planned to deliver when the Notice of Election was published on 22 February 2020 was not the election that the ECQ was required to deliver. A timeline outlining the emergence of COVID-19 in comparison with election timeframes is at **Attachment 1**.

In conducting the elections, the ECQ consulted closely with Queensland's Chief Health Officer who advised that the risk of COVID-19 transmission at a polling place was very low. To provide a safe environment for electors and other political participants at polling places, the ECQ implemented a range of measures at very short notice to protect public health and safety. These included:

- extending operating hours at early voting centres including opening until 9pm on both Wednesdays and Thursdays and on Saturday, 21 March
- implementing COVID-19 related personal hygiene measures including providing additional supplies of hand sanitiser to all polling places and encouraging voters to bring their own pens or pencils
- employing approximately 4000 additional staff to assist with security, queue control and social distancing measures
- expanding capacity of the telephone voting service tenfold and increasing postal voting capacity to cater to an unprecedented demand for telephone and postal voting
- making adjustments to the layout of early voting centres and election day polling booths, including floor markings to ensure social distancing measures, limiting the number of people inside a venue and closing every second voting screen
- ensuring health assessments were undertaken for election staff entering remote Indigenous communities, and
- issuing Directions to prohibit the distribution of how-to-vote cards at or near polling booths and limit attendance of scrutineers during counting in line with social distancing requirements.

All measures were implemented in accordance with the Chief Health Officer's Local Government Election and State By-elections Direction issued on 22 March 2020 that outlined the hygiene measures and social distancing requirements that ECQ staff, political parties, candidates and their representatives and members of the public needed to adhere to during the elections.

The priority for the ECQ during these elections was the effective and uniform roll out of these measures across Queensland to assure the safety of electors. Significant resources, both financial and human, were redirected from different parts of the ECQ, or externally sourced, to the COVID-19 response. This heightened and dynamic service delivery environment during the 2020 elections affected all parts of the ECQ and its large temporary workforce. During this period, the ECQ (in compliance with directions from the Queensland Government) was also uplifting its information technology capacity and capabilities to allow for a large proportion of its permanent workforce to move to a work-from-home arrangement in response to COVID-19.

These challenges also saw a significant shift in the voting patterns of the Queensland public compared with previous elections:

- 1.2 million people who voted during the two-week early voting period (500,000 in 2016)
- 470,000 postal votes were returned of the 570,000 issued (320,000 returned in 2016)
- 37,000 people who cast a telephone vote – (500 in 2016), and
- 750,000 people who voted on election day at a polling booth (1.6 million in 2016).

However, despite the challenging circumstances in which the 2020 elections were delivered, the turnout for the local government elections was approximately 77 percent¹. By comparison, the turnout for the 2016 local government election was 83 percent.

Development of the EMS

In 2015, the ECQ initiated a project to develop a new EMS to replace the Strategic Election Management System (SEMS) that had been in use within ECQ since 2006.

The SEMS was developed primarily to support the administration and management of delivering State general elections, but subsequently underwent multiple adaptations to accommodate legislative reforms and support the administration of local government elections and State referendums.

After initial development and maintenance, ownership of the SEMS application was transitioned to the ECQ and hosted as an on-premise application maintained and managed internally, with the exception of some (limited) public resources hosted by CITEC.

The expansion of the scope and functionality of SEMS over time led to operational issues when conducting electoral events and represented risks to the ECQ's operations due to factors including the tied service model and increased exposure to cyber-security and information privacy risk due to the overall solution being obsolescent.

In October 2015, the Queensland Government approved the procurement of a new EMS. Of the options available to the ECQ, a 'Commercial off the shelf' (COTS) system was determined to have the lowest risk profile – noting that bespoke development of a system was not encouraged. Funding was finalised in 2017.

The whole-of-government information technology policy frameworks supported the use of a Software as a Service (SaaS) delivery approach, which transferred most risks relating to maintaining current cyber security protections, redundancy, availability and maintenance, and performance upgrades to the supplier.

The ECQ subsequently implemented a staged procurement and evaluation process in 2016 to 2017 to acquire a new EMS based on a COTS model that addressed the risks posed by SEMS and took account of the increasing complexity of systems required for electoral administration which, in Queensland, included a solution which integrated with the Electronic Disclosure System (EDS) – an existing system used by the ECQ to publish disclosures lodged by donors, candidates and political parties.

The staged delivery process sought to achieve alignment with whole-of-government procurement guidelines for projects of this nature, such as the Queensland Government Chief Information Office processes and the Government Information Technology Contracting framework in place at that time (GITC v5.03). Specifically, a two-stage tender process was used consisting of an expression of interest

¹ Based on close of roll enrolment as at 28 February 2020 and the total number of ballots cast.

stage (EOI) and a request for tender (RFT) stage. Further detail on the conduct of the procurement process is detailed at **Attachment 2**.

The EOI for the Election Gateway Project (EGP) was issued on 29 April 2016 for a response by 30 May 2016, with seven submissions received for evaluation and three suppliers invited to submit a tender at the RFT stage. The RFT and request for information (RFI) processes were conducted between December 2016 and July 2017; two of the three selected tenderers submitted a response.

Evaluation committee membership included Queensland Treasury, Department of Housing and Public Works, ECQ representatives and stakeholders from the ECQ's business and technical groups. The evaluation moderation workshop was chaired by an external, independent advisor and monitored by a probity auditor.

Following assessment of the two submissions, a preferred proponent was identified on evaluations against the criteria value for money, technical and business responses, risk management and meeting the ECQ's business requirements as stated in the RFT.

On 3 August 2017, the EGP Steering Committee considered the recommendation, responses from the two tenderers to the RFT, and additional information provided through the RFI. This resulted in endorsement of the preferred proponent, Konnech Australia, an electoral software development specialist. Following financial and contractual negotiations and consideration by the Queensland Government Directors-General ICT Investment Council, the contract for the EMS was executed in January 2018.

Functions of the EMS

The new EMS is an online administrative system designed to manage most processes required to support the efficient, effective and reliable conduct of elections. Importantly, the EMS is not designed to conduct electronic voting, count votes or used to determine election outcomes.

The EMS supports a number of ECQ electoral activities, including:

- electoral administration – ability to manage electors, electorates and political parties and maintain system controls including the electoral roll and creating events
- planning and preparing for an election – populating data sets to systematically and financially plan for an election, including generation of data regarding staffing levels, equipment and other logistics information
- managing an election – the various aspects involved in conducting an electoral event in accordance with an election timetable, and
- reporting on, analysing and evaluating an electoral event – the continuous internal and external supply of information required for reporting throughout the election cycle.

The EMS comprises over 300 processes or functionalities which are incorporated into a single, integrated election management software-based system. This includes the Results/Website module, which comprises less than 10 percent of the EMS's total functionalities.

All functionalities are allocated across the following modules (a full EMS product landscape is available at **Attachment 3**):

Module	Functionalities
Elector	Elector search, roll data, Member of Legislative Assembly review, special postal voter review, elector offences
Staff	Settings, assignment, training, attendance, payroll
Candidate and Party	Reporting, nominations, local government groups, ballot draw, how to vote cards, financials, registration, candidate and party offences
Vote	Search electors, postal vote and other applications, electronically assisted voting, mobile polling, declaration vote scrutiny, vote exchange (interstate and international), voter reconciliation
Self Service Portal	For electors, electoral staff, candidates, political parties
Admin	User management, data imports and packaging, website controls, event controls
Location	Electoral profile and maps, building profiles, redistributions, site survey applications
Event	Electoral event creation, new, current and archived electoral events, industrial elections
ePollBook	Issuing votes, polling place management, device management, technical application and accessibility
Asset	Inventory management, event support, logistics, supply chain and materials
Results Website	Electoral event information, electoral event results (preliminary and official counts) and results monitoring and declarations
Help Desk	Help desk reporting and ticketing function

The EMS shares data feeds with a number of other critical systems within the ECQ's software environment such as the EDS, election staff payroll and training systems, as well as with external agencies such as the Australian Electoral Commission.

As detailed above, and in accordance with the Queensland Government procurement policy for software at the time of contract signature, the EMS is being delivered as a COTS product, procured through SaaS model whereby the ECQ licenses the product from the supplier for a six-year period. A range of availability, security, performance and upgrading requirements are contractually imposed upon the supplier, Konnech.

EMS delivery and governance

The ECQ has maintained a high level of active, communicative management to address the dynamic risk profile of the EGP.

A formal governance structure was established to provide project continuity and oversight, which includes representation across several key government departments and external advisors to provide input over the life of the project. The project is oversighted by the EGP Steering Committee,

which is the project governance peak body comprising representatives from the ECQ, EGP, Queensland Government agencies, and an independent IT advisor.

The ECQ has taken regular advice on governance relating to the project from the Office of Assurance and Investment, Queensland Government Customer and Digital Group since the initiation of the procurement. In addition, regular briefings and project documentation have been provided to the Queensland Audit Office since May 2018.

The project has also been subject to a series of formal internal and external assurance processes with further assurance exercises planned for the remainder of the project. These have been and will be supplemented as required with activities recommended by the EGP Steering Committee, the ECQ's Audit and Risk Committee and external agencies such as the Queensland Audit Office.

The Electoral Commissioner, with the support of the EGP Steering Committee, has also recently initiated the establishment of a technical reference group comprising experts in digital technology from various government departments. This group will provide direct advice and assistance on the results website, to ensure specific technical issues relating to the presentation of election result data are addressed prior to the State general election.

The key EGP governance structures and assurance activities are detailed in **Attachment 4**.

These governance mechanisms and assurance activities have been instrumental in ensuring the process for developing and delivering the project have been addressed in a timely and effective way. Due to the complexities of developing an EMS which is tailored to the specific requirements of Queensland's electoral system (with different requirements for both local government and State elections), a number of challenges have arisen with project delivery. This has included:

- **Impact of legislative amendments.** Amendments to the *Electoral Act 1992* and the *Local Government Electoral Act 2011* necessitated changes in scope and functionality of the EMS and EDS prior to the 2020 elections. These amendments were passed in November 2019 and commenced on 20 January 2020. The timeframe for implementation of system changes reduced the time available to design, implement and test new functionality and scope changes and ensure compliance with the final legislative framework. Nevertheless, the ECQ successfully addressed and reflected all statutory requirements in its systems and/or processes.
- **Vendor maturity.** The adoption of the COTS model as the Queensland Government preferred solution meant that no bids were received from an existing Australian company, as there is a limited local market for delivery of end-to-end electoral management systems. Konnech (a USA company) submitted a proposal predicated on creation of a local presence, Konnech Australia. It is a small, specialist software development enterprise which had demonstrated international experience in delivering large software solutions, but had limited experience in engaging with Australian governments and meeting associated governance and contractual requirements. While this was understood and identified as a risk during the selection process, the level of support Konnech has required to meet Queensland Government expectations of a project this size has exceeded expectations.

- **Level of COTS.** Both the ECQ and Konnech believed the level of customisation required to adapt the existing Konnech solution to Australian requirements would be relatively minimal. However, it quickly became apparent that the complexity of Queensland electoral law far exceeded that of any other Konnech customer. A significant level of customisation of underlying system functionality has been required to meet that complexity. Necessary compliance with a rapidly changing regulatory and cyber security environment has also had a major negative impact on the level of COTS.
- **Electronic Disclosure System.** The EDS is an existing system delivered by the ECQ that is an innovative, real-time system that allows anyone to view the disclosures provided by donors, candidates and political parties. The functionality of the EDS required a significant number of changes to operationalise the legislative amendments, which necessitated an upgrade of the EDS to a modern platform to facilitate new public reporting requirements of candidates, registered political parties and other electoral participants. As the EDS interchanges data with the EMS, the changes also caused major increases to the complexity of technical interfaces required to allow the two systems to operate in tandem.
- **QGov.** The Queensland Government's emergent policy regarding use of QGov, which resulted in its late inclusion in EMS as the primary accreditation tool for external user access, also created complexity for the EGP and the ECQ for both new users and existing EDS users. Mainly, the problems were related to new and existing users inadvertently creating additional user profiles while trying to use the QGov interface. Noting that this commenced in late January 2020, the issue caused a major increase to the ECQ's call centre but also diverted project and vendor technical resources way from finalising system development and testing to resolving the duplicate profiles 'manually' in the system.
- **COVID-19.** The emergence of the COVID-19 global pandemic affected the capacity of the vendor to undertake new software development through its international subsidiary companies from early January 2020 onwards, a critical time period for delivery of the project. As a result, deadlines for delivery of critical functionality were directly impacted.
- **State by-elections.** In February 2020, the resignations of two State Members of Parliament necessitated the concurrent conduct of two State by-elections with the local government elections. As a result, an urgent review of functionality was undertaken. This resulted in the 'bringing forward' of previously deferred functionality to ensure that the by-elections could be delivered through the EMS, increasing development and testing workloads during that critical period.

During the delivery of the project, the EGP Steering Committee continually monitored project progress, risk profile and the delivery challenges noted above. In August 2019, the EGP Steering Committee directed a change in delivery strategy to mitigate issues relating to legislative amendments, vendor capability and associated EDS impacts. This subsequently resulted in the EGP Steering Committee approving the delivery of the EMS through a prioritised, phased approach;

functionalities required to support the March 2020 local government elections only (Phase 1), and all remaining functions (Phase 2).

At a high level, the following functionalities being delivered for the March 2020 elections as part of Phase 1 works were:

- System administration module
- Elector search, communications and reporting functions
- Staff management module
- Vote module
- Candidate and party registration and event functions
- Self Service Portal functionality for electors, electoral staff and candidates
- Location management functionality for planning and locating polling booths
- Event creation and management functionality (focused on local government election delivery only)
- ePollbook module (software used at polling booths), and
- Website module, including both event information and a results presentation function.

As indicated above, the EMS is now moving into Phase 2 of its delivery with a focus on enhancing existing functionality and delivering remaining functionality necessary to support a State-wide election (refer to the EMS product landscape at **Attachment 3**).

Election results website

The EGP includes two website components, the election event website to display key information regarding elections, and the election results website to display election results. The election event website was in operation for the 2020 elections, and hosted information and functionality relevant to those elections including displaying all candidate nomination information and election event timetables and providing online functionality to apply for postal votes and search for polling booths.

The election results website is an integrated solution for recording, reporting and publication of election results. The site also publishes event results data through an XML (Extensible Mark-up Language)² feed for election events.

For local government elections, results are displayed for each current electoral event and for each local government area contest for mayors and councillors. These results are in alignment with each local government area's voting method (optional preferential voting or first-past-the-post) and whether a council is divided (multiple divisions) or undivided (single division with multiple councillors). Where an election is uncontested there is no data to be displayed other than declaring the successful candidate.

For each contest there are up to four counts of data published: 1) the unofficial preliminary count (counted on the night of the election), 2) an unofficial indicative count for certain contests, 3) the

² XML data is formatted data that can be consumed by information technology systems that belong to interested parties such as the media and political organisations or any member of the public who chooses to use it. This is the same results data that is displayed on the website but is stored in a machine-readable manner.

official first preference count (generally commences the day after the election) and 4) the official distribution of preferences count (for optional preferential voting contests where there are three or more candidates). Polling booth level data is subsequently published post the event.

Once a candidate has been declared as elected the website is updated to reflect this with a "Declared Status" with a link to a signed certificate declaring the candidate/s as being elected to a position.

In preparation for the 2020 elections, independent load testing of the results website functionality within the EMS was undertaken in March. Initial load test results indicated potentially high numbers of slow and nil responses at loads well under those specified in the EMS requirements. Further load testing occurred over the following days which confirmed the initial results.

Following further discussions with technical staff, inadequacies were identified in the ICT architecture deployed for the results website, which included cyber security issues which could potentially have made the website vulnerable to a Distributed Denial of Service (DDoS) attack. DDoS is a security event that occurs when an attacker prevents legitimate users from accessing specific computer systems, devices, services or other IT resources. The ECQ would be pleased to provide the Committee with a confidential briefing on these issues if required.

On 13 March, the ECQ began working with Konnech to remediate the results website performance and architecture issues and to schedule additional independent load and other testing to ensure any mitigations were effective. The ECQ also began a process to stand up and provide an alternative ECQ results presentation website.

On 21 March 2020, the ECQ received the results from a second round of load testing on the results website. This testing indicated unacceptable load times of over one minute or failures to load with large numbers of simulated users, as would be expected on election night. Further details of load testing performed by independent experts can be provided to Committee if required.

The testing outcomes gave low confidence that the results website would perform as required on election night for the 2020 elections. Therefore, a risk-based decision was made by the ECQ and advised to Konnech on 23 March 2020 and the EGP Steering Committee on 24 March 2020. This decision was the ECQ was to proceed with final development of the (in progress) ECQ backup site for use on election night due to the results from the load testing representing a risk that did not look to be sufficiently reduceable within available timeframes and resources.

The results presentation website was an internal ECQ initiative that commenced early in March 2020 as a possible backup solution should the EMS results website not be available for use. Unlike the EMS results website, which is an integrated component of the EMS, the ECQ results website is a standalone environment. The ECQ results website can be broken into three fundamental parts: 1) entry and loading of data; 2) presentation of data via the website and XML feed; and 3) infrastructure used to host the website and XML feed.

The ECQ website infrastructure solution (refer to **Attachment 5**), was developed with advice from Microsoft and implemented on a 'Platform as a Service' delivery model within Microsoft Azure. The ECQ results website infrastructure was built to address the load and architecture issues that were identified with the EMS results website. Subsequent independent load and vulnerability testing

confirmed that the ECQ results website exceeded the necessary load performance criteria. The use of the ECQ's existing Cloudflare Service also mitigated any risk from potential DDoS attacks.

The original design concept was to take results data from EMS, process this data into the necessary formats (for the website and XML) and pass clean and validated data to the ECQ results website (refer to **Attachment 6**). Data validation of entered data would occur as part of EMS, not as part the website loading process. This decision was re-evaluated as indicated above with the standing up of the ECQ backup solution.

Based on this, the decision was made to use Smartsheets (a shareable spreadsheet application similar to Excel) as a data entry method for Returning Officers, as it was a familiar product to the ECQ Business, relatively simple to use, auditable and could be set up in a short period of time (refer to **Attachment 6**). This required changes to be made to the data conversion and load method for ECQ results website to support a Smartsheets entry.

Election night publication of results

On election night, the vote counting process proceeded as normal under the supervision of Returning Officers and/or polling booth supervisors. Election staff across Queensland undertook the count, recorded results in Smartsheets for reporting through to the ECQ and subsequent publication on the ECQ website. However, the revised process for reporting data to the results website was a more manual and data-driven process compared with the integrated and automated functionality anticipated through the EMS results website. This created new risks in relation to the timeliness of reporting results, while addressing previously identified risks around website load capacity and cyber security.

The process for loading results on election night was for results data to be entered into Smartsheets with a manual export of data. An automated process would load the data to an ECQ development website for review by experienced ECQ staff prior to release on the public website. This process was intended to become fully automated after several successful loads of data. However, issues were experienced with data formatting that delayed the data loading process and the loading of results.

As the issues relating to the publication of results were identified, the ECQ proactively issued a number of communications to key stakeholders to ensure they were aware of the status of publication of results and to provide regular updates on progress. This included telephone contact with representatives of registered political parties, email communications to candidates and political parties to advise of the issue and subsequent rectification, regular liaison with media outlets, updates posted to the ECQ website and social media posts.

In addition, following the earlier Direction to prohibit the attendance of scrutineers during the preliminary count on election night due to the need to enforce COVID-19 social distancing requirements, the ECQ advised Returning Officers that scrutineers should be allowed entry to polling booths to view the preliminary count. It was the ECQ's intention to maximise transparency throughout the night, as it worked to understand the cause of delays, and resolve these as quickly as possible.

A number of follow-up communications were put in place on Sunday, 29 March and beyond, primarily through social media, media releases and an online daily update to provide regular summary information on the progress of the counts. This continued until all results were formally declared on 20 April.

Election night timeline:

Saturday, 28 March

- | | |
|-----------------|---|
| 6pm to 7pm | <ul style="list-style-type: none">• Following the close of polls at 6pm, election staff commenced the counting process and progressive reporting of results through Smartsheets to ECQ.• As results were reported to the ECQ, data formatting issues were identified whereby Smartsheets data deviated from the specifications provided, such as incorrect contest names, invalid values that included non-alphanumeric characters and the use of multiple Smartsheets for a single contest instead of one per contest.• By 7pm, initial data issues were rectified, and available results were loaded to the results website. |
| 7pm to 10pm | <ul style="list-style-type: none">• From 7pm, issues relating to inputted data affecting the loading of data were still occurring, being investigated and rectified. The issue related to multiple sheets for a single contest causing the automated data loading process to fail.• A workaround was implemented for the multiple sheet issue, whilst the issue was further investigated. As a priority the focus was on the public website rather than the generation of the XML feed.• From 9pm, contact was made with political parties and Returning Officers to allow scrutineers to be admitted inside polling booths to view the preliminary count, an email was sent to candidates and political parties and an update posted to the ECQ website. |
| 10pm to 12.30am | <ul style="list-style-type: none">• By 10pm, after implementing further input data quality checking, loading recommenced to the website development environment with data being reviewed and any issues rectified prior to loading results to the website.• By 11pm, the majority of results were published and by 11.45pm, all available results data was publicly available.• By 12.30am, two further emails had been sent to candidates and political parties, two further updates posted to the ECQ website, advice provided to media outlets and an update posted to social media. |

Post-election publication of results

On Sunday, 29 March, results data continued to be loaded to the website via the workaround processes developed on election night. By 1pm, the issue relating to the contest with multiple sheets was rectified, the workaround process was removed, and the normal loading process was working as expected. Additional verification processes were implemented where ECQ staff would further review data in the development environment before it was released to the public. XML data was made available after applying the same changes to validate data input.

Additional processes implemented to review and validate input data prior to public release addressed the input issues; however, they added additional time to the release of data to the website. The processes were therefore subsequently reviewed and refined as discussed further below.

In addition, on Sunday, 29 March, an assurance audit of the results website was conducted at the direction of the Electoral Commissioner to assess the stability of the system and processes for its continued use for the remainder of the election period. The audit was performed by senior IT officers from the Department of Housing and Public Works (DHPW). Recommendations for improvement were made through the assurance audit with continuation of the existing processes put in place. DHPW provided further technical assistance regarding automating the export of data from Smartsheets.

The processes implemented to manage data flowing from Smartsheets to the results website relied on both automated checking and quality review by experienced ECQ staff prior to public release (refer to **Attachment 7**).

In implementing these additional processes, the ECQ continued to seek expert advice from DHPW. As a result, DHPW provided resources to assist in periodic reviews of website and XML data generation during the initial stages of this process.

Once the augmented data load process was fully finalised on Tuesday 31 March, the ECQ updated data three to four times per day based on available results reported from Returning Officers. Further validations were added to improve performance; however, the limiting factor became the speed of Returning Officers counting votes within the COVID-19 restrictions and associated resourcing impacts.

It should be noted that automated and manual validation processes are always required to be implemented by the ECQ to verify results. In addition, the process of counting votes occurs in a number of stages to ensure that all votes are counted multiple times to provide confidence in the results.

Process for vote counting

The counting of votes is a highly manual and decentralised process that occurs under the supervision of election staff located across Queensland. As noted above, electoral legislation requires the conduct of multiple counts as a safeguard to the accuracy and legitimacy of election results.

For the 2020 local government elections, 578 mayors and councillors were elected, with electors eligible to cast separate votes for their mayor and councillor. Additionally, due to the first-past-the-post voting system, ballot papers are counted multiple times to elect councillors representing undivided councils. As a result, in the 2020 local government elections, approximately 7.5 million votes were counted to finalise the election of representatives for Queensland's 77 local governments.

At the close of polling at 6pm on election day, the following preliminary (unofficial) counts were commenced:

- Preliminary counts of early voting centre votes
- Preliminary counts of ordinary votes received at election day polling booths for mayors and councillors
- Preliminary counts of Brisbane City Lord Mayor and councillor votes across all wards including City Hall
- Counts for full postal council mayors and councillors, and
- Preliminary counts and indicative counts for Bundamba and Currumbin State by-elections.

After election night, the following counts commenced:

- Telephone voting – ballot papers were sorted and securely despatched to the Returning Officer for the relevant council
- Votes taken at Brisbane City Hall for other local government areas – ballot papers were sorted and securely despatched to the Returning Officer for the relevant council
- Continuation of counting of early voting centre votes if required
- Counting of ordinary absent votes for councillor from polling booths and pre-poll centres., and
- Scrutiny and counting of declaration votes, other than postal votes.

As soon as practicable after the preliminary counts were completed, the official counts were undertaken under the supervision of the Returning Officer for the relevant council. All preliminary counts are counted again as part of the official count.

In the 2020 elections, over 470,000 electors cast their vote via postal vote. Under electoral legislation, the last day for receipt of postal ballots was Tuesday, 7 April 2020 and any postal ballots received by the ECQ after 5pm on that day were excluded from the count. The counting of postal votes involves additional processes to verify validity of votes while assuring the secrecy of individual ballots. Postal vote envelopes are scrutinised by the ECQ using the EMS and stored in sealed ballot boxes until ballot papers are removed in a way that retains secrecy. Those ballot papers are then counted and entered to the results.

A full preference count is conducted for all elections using the optional preferential voting system (mayoral elections and divided councils). A full preference count is a process whereby the votes are distributed according to the first preference, and if no candidate meets the required votes to win (50% + 1), the candidate with the lowest number of first preference votes is excluded from the count and their ballot papers distributed to the other candidates remaining in the count. Ballot papers that contain no preferences become exhausted and are set aside.

This process continues until there are only two candidates remaining in the count. The candidate who achieves 50% + 1 of the votes remaining in the count has an absolute majority and is declared the winner. In some cases, a full preference count is required to determine the candidate who has achieved an absolute majority of votes, resulting in the declaration of the election. However, ECQ conducts a full preference count for statistical purposes and publishes results to the website.

Declarations of election results are made as soon as it is mathematically impossible for the result to change. The large volume of postal votes and in-person declaration votes and the high uncertainty of the impact they may have on distribution of preferences had an impact on the ECQ's ability to declare results in some elections. In those elections, the declarations occurred as soon as possible following the close of postal voting, and once sufficient postal ballots and in some cases the conduct of a full preference count had been completed to determine the outcome.

For example, in the local government area of Woorabinda after the preliminary and primary counts were completed there was a tie. A random draw was conducted to determine the elected candidate and this was also followed by a re-count to provide confidence in the tied result. The recount returned the same result, and so the candidate whose name was drawn first in the random draw was declared as the elected candidate.

Planning for State general election

Planning is now underway for the State general election to be held on 31 October 2020. Given the continuing impacts of COVID-19, a variety of options are being considered for delivery of this event. As the Premier has indicated, a predominantly postal election is one such option, along with a more traditional 'mixed method' of voting via a combination of COVID-safe in-person voting in the early voting period as well as on election day, postal voting, and via telephone voting.

While the method of election delivery does not affect the need to publish election results data, it can affect what information is available to be published, and when it is available. For example, a predominantly postal election presents a very different vote counting scenario than a more traditional election, given electors have until 10 days after election day to return their votes. Naturally, that could greatly reduce the information available to the ECQ on election day for publishing that same night if many electors do not return their votes quickly. By comparison, the mixed model of election delivery usually results in a significant number of early votes and election day votes being available for preliminary counting and publication on election night.

This is important as context so that the Committee appreciates that the ECQ has both a system development phase in front of it ahead of the October election (more information below), coupled with a planning and communication challenge depending on the final model of election delivery.

In this regard, the experiences and external influences on the EMS project through 2019 and early 2020 have resulted in an obvious and acknowledged need to focus on system stability. The strategy for preparing the EMS for delivery of the State general election is to focus on:

- correction of any outstanding defects
- development of additional functionality to remove the need for manual/external work-arounds (underway)
- identification of issues identified during delivery of the March 2020 elections (underway) and development of functionality to address these issues, and
- implementation of remaining EMS functions necessary to deliver and manage the election.

As adopted during the lead-up to the March 2020 elections, all work will be actively managed with the EMS vendor to minimise risk and development time, and maximise time for testing, defect correction and training.

The ECQ has undertaken an internal analysis of the EMS results website compared to the ECQ results website to determine which solution to utilise in the State general election. Based on this analysis, the ECQ intends with proceeding with development of the EMS results website to deliver the fully integrated solution originally anticipated through delivery of the project. This will include addressing the identified issues relating load and architectural issues identified prior to the March 2020 elections.

To support the implementation of this option, the ECQ is also currently establishing a technical reference group comprising experts in digital technology from key Queensland Government agencies. This group will provide direct advice and assistance to the ECQ in ensuring specific technical issues are addressed prior to the State general election and provide appropriate assurances to the EGP Steering Committee.

Conclusions

The ECQ thanks the Committee for the opportunity to provide its submission to the inquiry, and looks forward to providing any further detail required to support the Committee's deliberations. The ECQ reiterates its strong commitment to ensuring timely, accurate and transparent reporting of its activities across all stages of the electoral cycle, most critically, publication of election results.

The delivery of the local government elections, State by-elections and the State general election in 2020 present a large but achievable challenge to the ECQ, particularly in the context of the emergence of the COVID-19 global pandemic. The ECQ remains firmly committed to delivering a high level of service to all 3.3 million of Queensland's electors, as well as candidates, registered political parties, political participants and other stakeholders.

Following the conclusion of the local government elections, the ECQ is firmly focused on successful delivery of the State election in October and addressing all issues identified during the March elections, including the publication of election results.

List of Attachments

Attachment 1 – 2020 local government election timeline

Attachment 2 – EMS procurement process

Attachment 3 – EMS Product Landscape

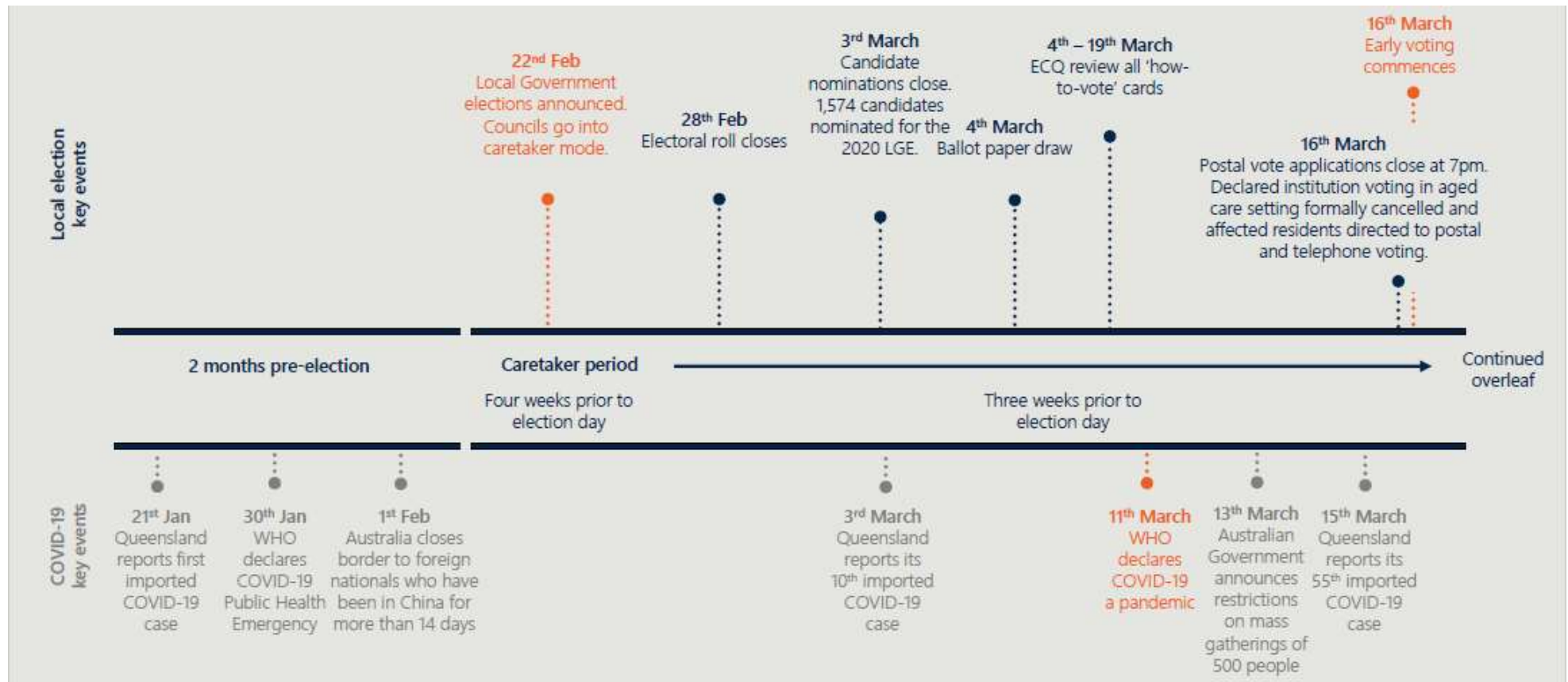
Attachment 4 – EGP governance

Attachment 5 – ECQ website hosting infrastructure

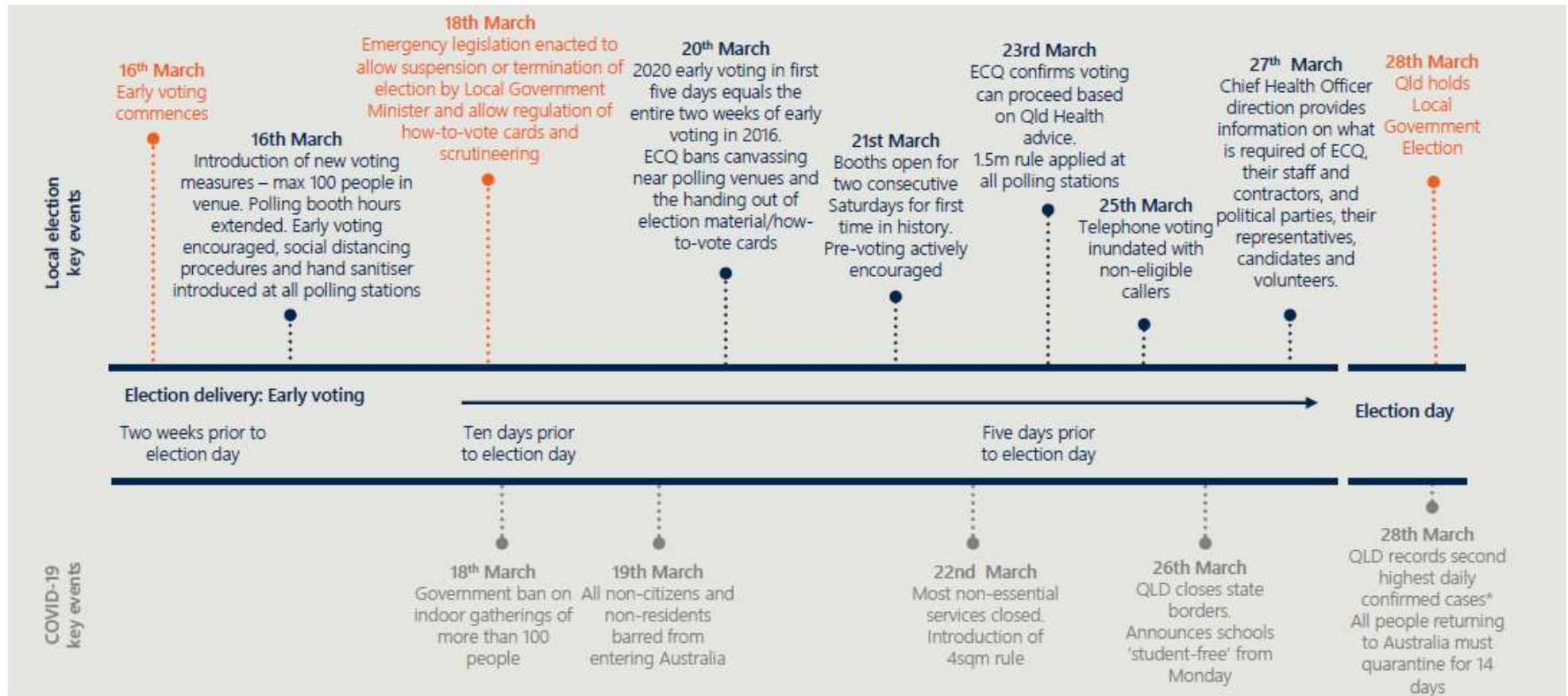
Attachment 6 – ECQ website data flow

Attachment 7 – Validation process for data release

Attachment 1 - 2020 local government election timeline



Inquiry into the Electoral Commission of Queensland's online publication of preliminary and formal counts of the votes cast in the local government elections and State by-elections held 28 March 2020



Attachment 2 – EMS Procurement Process

ECQ considered three options for an effective, reliable and future-ready election management system, as follows.

1. Continue to operate SEMS and introduce improvements and refinements where feasible.
2. Lead the development of a bespoke election management system.
3. Purchase a COTS EMS by seeking a vendor which could reconfigure an existing election management system to meet Queensland's legislative provisions and ECQ's business requirements.

The Queensland Government's ICT and procurement policy at the time strongly influenced the decision to go with Option 3 as it was determined to have the lowest risk profile. Given the mission-critical nature of an EMS, and the potential reputational and legal damage likely to result from a significant system failure, minimising risk by procuring a system with a verifiable background was considered prudent.

Staged procurement allowed the market to innovate, guide tender requirements and facilitate competitive tension as suppliers actively participated in the process. The approach was necessary given the limited market for EMS products and Government's policy position to minimise bespoke or heavily-customised existing commercial solutions³.

The EOI process consisted of a written response to specifications followed by a product viewing from suppliers shortlisted. Seven submissions were received for evaluation, with four proceeding to the product viewing stage. The product viewing resulted in three of the four suppliers being invited to submit a tender at the RFT stage.

The outcomes of the EOI demonstrated that there was some depth in the market (albeit predominantly off-shore) and enhanced ECQ's understanding of available solutions and associated risk. The knowledge acquired was utilised in the development of RFT specifications and GISC modules to manage transaction risk.

An RFT and request for information (RFI) were conducted between December 2016 and July 2017; two of the three selected tenderers submitted a response. The outcome of the process led to the EGP Steering Committee awarding preferred tenderer status to one vendor on 3 August 2017.

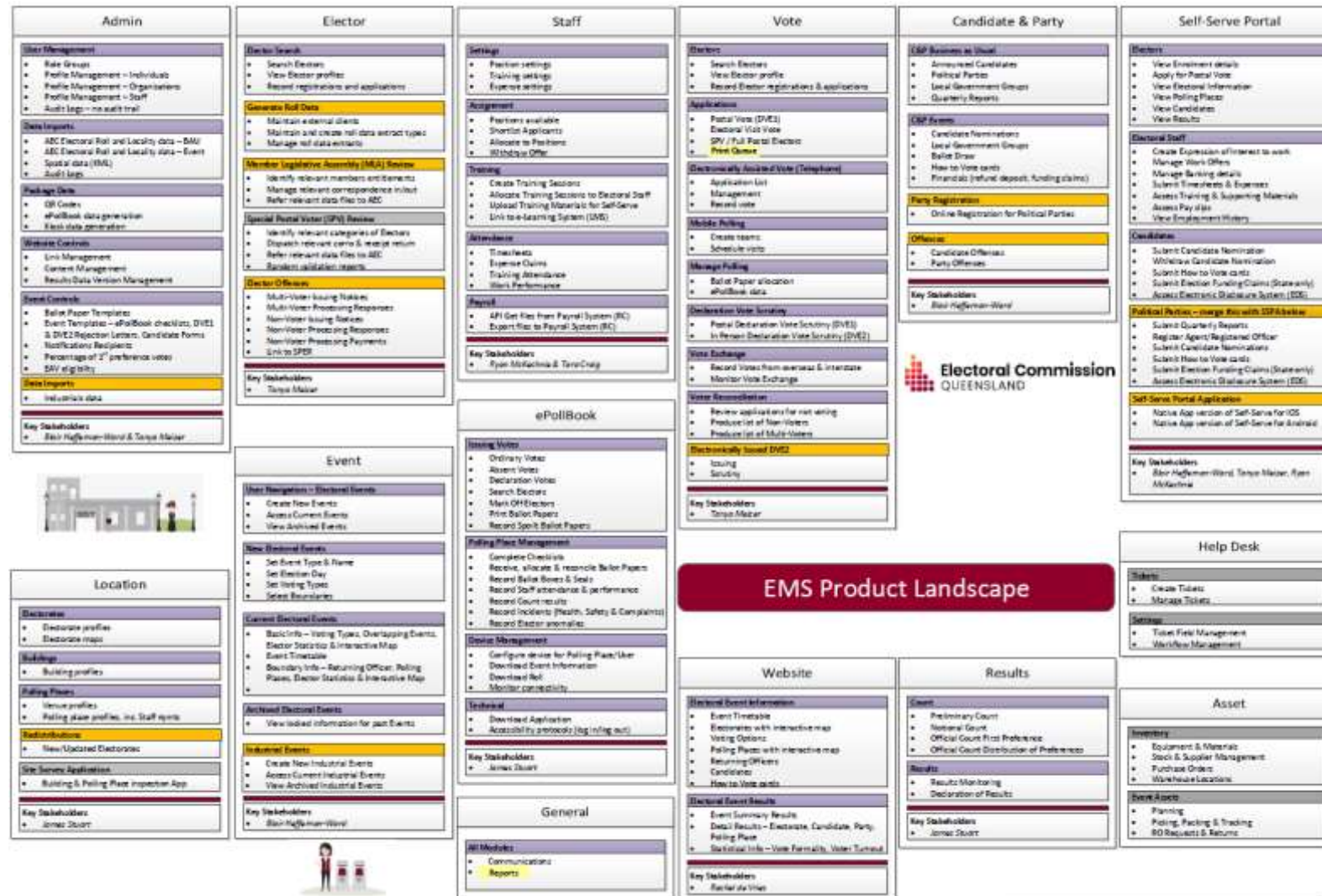
The two submissions had quite different risk profiles. However, the evaluation resulted in a clear recommendation to the ECQ for the nomination of a preferred proponent in August 2017. That recommendation was made on the basis of value for money, technical and business responses, risk management and meeting the ECQ's business requirements as stated in the RFT.

On 3 August 2017, the EGP Steering Committee considered the recommendation, responses from the two tenderers to the RFT, and additional information provided through the RFI. This resulted in endorsement of the preferred proponent – Konnech Australia.

Negotiations on financial and contractual arrangements were conducted between ECQ and the preferred tenderer between August and October 2017 with presentation of a contract (following consideration by the Queensland Government Directors-General ICT Investment Council) to Konnech Australia in December 2017 and its execution in January 2018.

³ <http://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2013/5413T2865.pdf>

Attachment 3 – EMS Product Landscape



Attachment 4 - EGP governance

The key project governance structures are as indicated in the table below.

Key EGP Governance Structures

Meeting	Purpose	Membership	Frequency
EGP Steering Committee	Project governance peak body Strategic matters Information Technology advice General project progress Support the Senior Responsible Officer (Electoral Commissioner) in making decisions Approval of major variations Commercial and contractual matters	ECQ executive leadership Department of Housing and Public Works Queensland Treasury Independent Information Technology Advisor The Office of Assurance and Investment, Queensland Government Customer and Digital Group Australian Electoral Commission EGP Project Director EGP leadership	Monthly noting fortnightly from 14 January 2020 to 24 March 2020
ECQ Senior Management Team	Support decision-making for the EMS at ECQ executive and enterprise level	ECQ executive leadership EGP Project Director	Weekly
Management Committee	Support project level management level decisions and day to day operations of the project	EGP Project Director Director, Governance and Assurance, EGP EGP Project Manager Supplier Project Manager Supplier Principal EGP Project Coordinator	Weekly
EGP	Project delivery entity Supplier management ECQ liaison	Project leadership Technical advisors ECQ seconded staff	Ongoing
EGP Team Leaders Meeting	Review current operational status and alignment of progress to strategy	EGP leadership team	Three times per week
Change Board	Consideration of EMS change requests	ECQ leadership	As required

Meeting	Purpose	Membership	Frequency
Audit and Risk Committee	Monitoring of whole of enterprise risk management	EGP leadership ECQ Internal Audit Queensland Audit Office External specialists	Quarterly
Transition Committee	Provide guidance to the Commission on the operationalisation of the EMS	EGP Leadership team Change management ECQ Operational staff	Fortnightly to March 2020

Project Assurance

The project has been subject to a series of formal assurance process/requirements to date, as indicated in the table below.

EMS Project Assurance Activity Description	Timing
Initiative start date	June 2015
Internal quarterly project health checks	November 2015 January and April 2016
Assurance Review Gate 2	February 2016
Assurance Review Gate 3	October 2017
Gate 3 report and Action Plans to QGCIO	October 2017
Investment Review – Director General Council on Information Technology	December 2017
External Specialist Health Check	November-December 2018
External Specialist Health Check	August 2019
External Assurance Review	December 2019-January 2020
External Specialist Spot Review – Pre-Election Health Check	March 2020

Additional project assurance activities are planned for the project's remaining term as indicated in the table below. These will be supplemented when/if required with activities as recommended by

the EGP Steering Committee, ECQ Audit and Risk Committee and external agencies such as the Queensland Audit office.

EMS Project Assurance Activity Description	Timing
External Specialist Health Check	August/September 2020
Assurance - Gate 5 Review	Scheduled for July 2021
Submit Gate 5 report and Action Plans to QGCIO	Scheduled for August 2021
Initiative end date	December 2026

Software Assurance Strategy – Election Management System

ECQ has implemented a comprehensive software Assurance strategy for the EMS which has been designed with the assistance of the Office of Assurance and Investment, Queensland Government Customer and Digital Group and the Australian Cyber Security Centre.

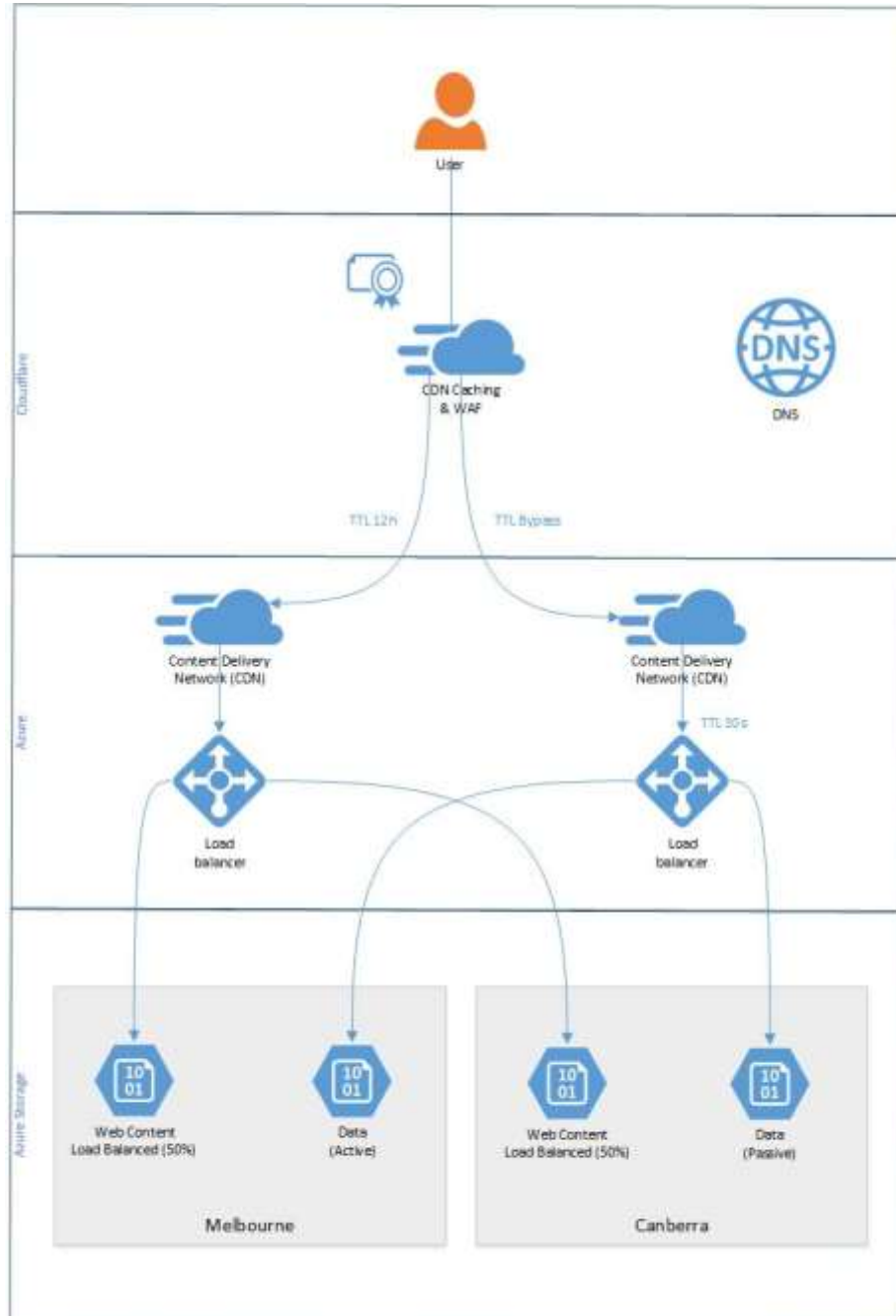
A panel of external system security and assurance specialists was established in October 2019 to provide:

- development of a cyber security roadmap to support the transition of the system to Go Live, including a risk mitigation strategy to Queensland Government Information security information standard (IS18:2009)⁴
- testing of interfaces between EMS and the range of internal and external systems it will rely on for data movement and functionality
- penetration testing of the EMS itself
- penetration testing of the Electronic Disclosure System, Payroll system and Learning Management System
- spot code reviews or red team testing of higher risk EMS modules, such as ePollbook and Vote
- advice as required to respond to emergent issues during the transition period, and
- desktop audit of the EMS supplier controls and assurance measures.

Proponent and security and internal controls were a consideration in assessing the submissions from the tender process and were initially based on the boilerplate GITC terms and conditions as utilised by the Queensland Government. During 2019, ECQ augmented this framework through a comprehensive assurance program which includes IS18 risk management, external vulnerability assessments, code reviews, coordination with the Australian Cyber Security Centre on strategic threats and testing of the new EMS and audits of both ECQ/EGP and the supplier security controls.

⁴ This was repealed in March 2019 and replaced by Information security policy (IS18:2018). The GITC with Konnech Australia refers to the former, but ongoing activities are focused on alignment with the latter wherever practicable.

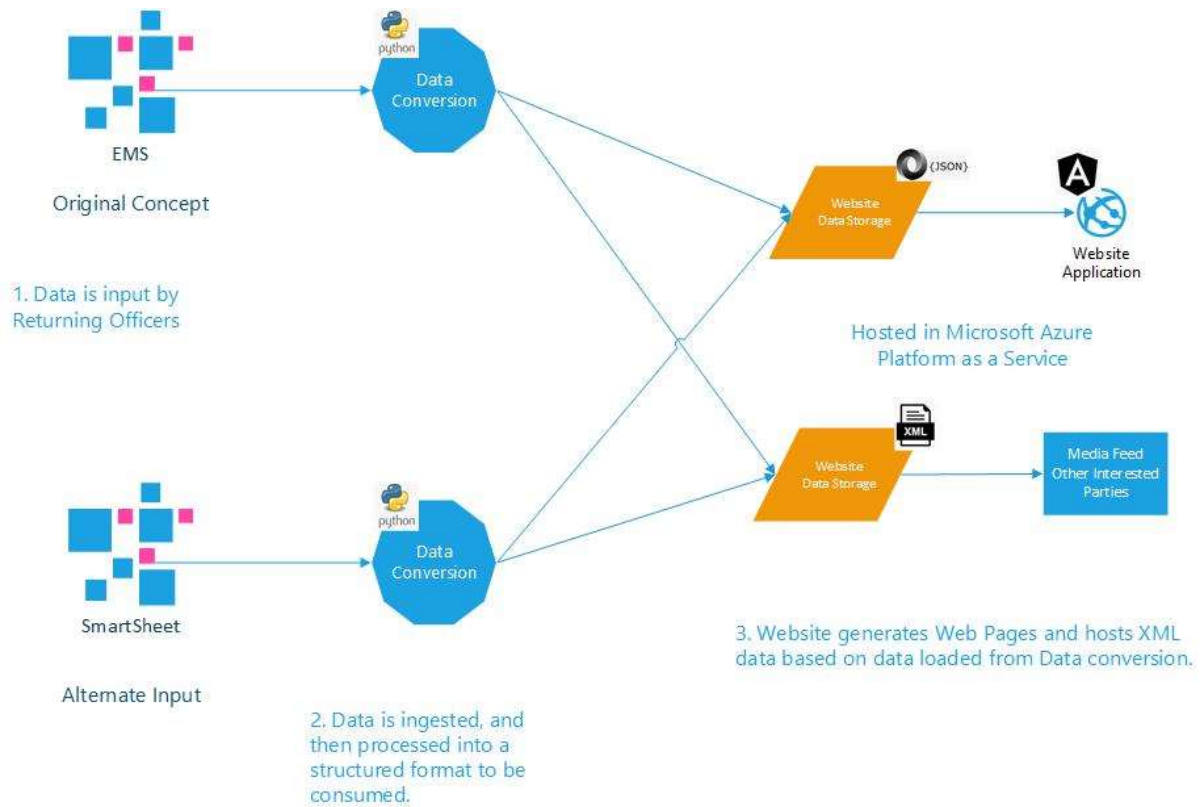
Attachment 5 - ECQ Results website hosting infrastructure



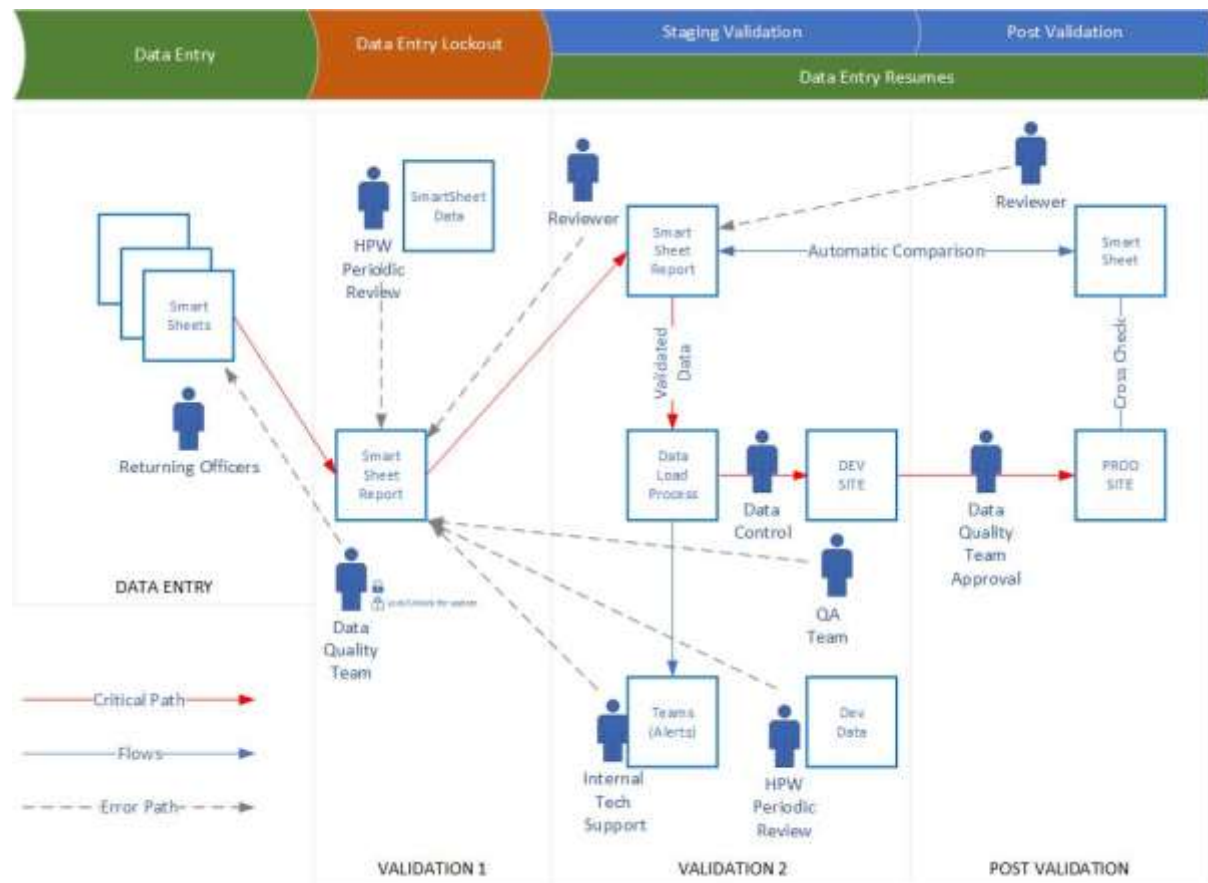
- Built in Microsoft Azure Platform as a Service, with advice from Microsoft
- Highly available via:
 - Geo-Clustered across Azure Regions
 - Web Content 50% split across the two sites
 - Active/Passive Failover for Data
 - Load Balanced Across Sites
 - Azure Content Delivery Networking (CDN) (Cache for fast access to web pages)

- Secured via Cloudflare
 - Security
 - Web Application Firewall (WAF)
 - Distributed Denial of Service (DDoS) Protection
 - Bot Management
 - DNS for performance and security
 - CDN (Cache for fast access to web pages)
- Independent testing for:
 - Vulnerability Scanning (cybersecurity)
 - Load Testing for performance
 - Load Test 30,000 connections per second (1.8M users per minute) @ 99.9% success rate, average page load time < 7 seconds

Attachment 6 - ECQ Results Website data flow



Attachment 7 - Validation Process for Data Release



The validation of results consisted of four components:

1. Data entry by Returning Officers.
2. Data entry validation – Returning officers would be locked out for a short period of time to perform a data extract. This extracted data was first validated for input errors. Updates were then reviewed by a data quality team (experienced ECQ staff members) for anomalies in the data (e.g. data entered in wrong categories) which was then reviewed with Returning Officers as necessary.
3. Staging validation – reviewed data was loaded to the website in the ‘development’ (non-public) environment, with a series of automated validation checks performed and anomalies reported to both ICT and data quality teams. Any anomalies were reviewed by the data quality team with Returning Officers as required. A second team of experienced ECQ staff rechecked data in the development website and cross checked with the data quality team. Once all checks were complete, the data quality team leader released data into the website’s ‘production’ (live) environment. This also included the generation of XML data.
4. Post validation – after data was loaded into the public website a final validation check was performed.