Examination of Asset Management Procedures in a Local Government Office and its Correlation to Good Governance

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Abstract: Asset management procedures are examined in terms of respective correlation to good governance; asset management strategies can be challenging in the public sector where capital funding and resources are limited. This research uncovers why inefficiencies in local government asset management exist. Whilst past researchers have identified general efficiency factors, a lack of focus remains regarding the role that asset management plays to specifically enhance efficiencies. Asset-management procedures in a chosen, case-study local government office was investigated using a qualitative research methodology encompassing individual semi-structured interviews with key stakeholders. Data generation focused on: demographic characteristics; effective decision-making strategies; life-cycle costing; risk management; governance; and, collaboration and distribution of capital funds regarding asset management. This work identified that, formalised collaboration pathways and strategic planning at the project initiation stage were lacking. While proactive strategies were notably valued, innovations regarding climate change and sustainability were sidelined in favour of other business priorities. Maintenance issues such as lack of storage capacity for spares and appropriate inspection frequencies were found to impact efficiencies and posed a risk to adequate delivery of community services. Additionally, governance mechanisms to drive continual improvement, accurate life-cycle cost analyses, technical experience, good quality asset-data, strategic management and external partnerships were either found to be absent or insufficient. Recommendations are provided that center upon a developed guidance tool able to illustrate/facilitate placement of asset management procedures throughout an asset's life across six-stages, from creation to planning, execution, monitoring, handover and ultimately disposal embracing a cradle-to-cradle approach to assist facilities' managers.

Keywords: asset management, local government, governance.

1.   Introduction

The development of asset management has been a gradual phenomenon that has taken a firm grip in the world today. Lloyd and Corcoran (2019, 11) define asset management as allowing "asset-intensive businesses to use limited resources to achieve their stated business objectives in the most cost-effective way." Indeed, asset management plays a significant role in an organisation's realisation of its vision and objectives. The public sector organisations have a responsibility to guide urban growth and enable good asset management strategies for the benefit of communities, industry and the environment but there lies the ever-present risk of the unknown and, increasingly, the complexities of climate change. The need for effective asset management has been growing since the 1990s as more and more organisations seek ways to increase their efficiencies and ultimately increase profitability. It is logical to challenge renewal and maintenance systems when budgets are tight with the aim of achieving the right balance. Whyte agrees that there is a "need for decision support tools, both at the planning phase and throughout the life cycle" (2015, 44). It is necessary therefore to continue to examine current practices of asset maintenance and renewal and uncover ways to improve the technical process, the decision-making process and the opportunities to realise enhanced asset performance and management into the future.

2.   Literature Review

A brief review of applicable literature was conducted and examined the issues of optimizing decision-making approaches, the benefits of collaboration and partnerships, strategic management to improve performance, risk management and corporate governance in local government. Srinivasan and Parlikad (2017) understood that the traditional focus on asset life cycle costs as the main decision driver could be short-sighted, and that an appreciation of the asset value to relevant stakeholders should be considered when making asset management decisions. Both Amador-Jimenez and Mohammadi (2020), and Hurley, Ashley and Mounce (2008) agreed that stakeholder engagement is vital to effective asset decision-making. Additionally, Amador-Jimenez and Mohammadi's (2020) research examined the decision-making methods for infrastructure asset management; however, no novel optimization model for decision making was

proposed. Although Ollerenshaw, Murphy and McDonald (2017) admitted local government partnerships can be beset with issues their research suggests local governments can contribute to successful partnerships as a lead partner. On the other hand, Wilkins, Phillimore and Gilchrist (2015) argued that a more systematic approach is required by organizations to facilitate effective collaboration, with Urquhart and Whyte (2020) recognising the need for stakeholders to benchmark governance more explicitly.

Researchers have also analysed the impact of strategic management to meet corporate goals and objectives. In Australia, local governments have strived to meet demands for improved public performance and performance measurement systems such as Best Value, and Service Effort and Accomplishments have been implemented (Yetano 2009). However, Johnsen (2018) highlighted that, although strategic management is over 30 years old and considered best practice today, no significant proof exists as to its outcomes. De Waal's (2010) research indicated that the public sector scored below the private sector organizations on the performance efficiency factors and could vastly improve.

In asset management, identifying risks can impact decisions involving resource allocation, frequency of maintenance routines or investments. Using unobtrusive research techniques, Nel (2019) in her study found that risk management in local government, is required across all aspects of an organization as a higher-order management function to achieve improved service delivery whilst Crawford and Stein (2005) in their research discovered that risk management is being practised in local governments without this being fully labelled as such. Hood and Smith concluded that "quantifying risk management outcomes in isolation on a fiscal basis is challenging and not possible with a single indicator" (2012, 317). Although all research studies explored were based on research obtained from local governments, risk management techniques in direct relation to asset management was an area that lacked attention.

The benefits of implementing good asset management strategies are not always immediately visible. Research over the years has explored the role governance can play in local government and Ryan and Ng (2000) found that in their research that local governments did not totally adhere to corporate governance practices. Entwistle et al. (2016) found two main findings from their study, first that newly introduced governance between levels of government had not been characterized by interdependence, diplomacy and partnership and secondly, perceptions differ between service areas in local government. Although this research examined governance styles and their presence, the impacts of these various styles were not examined.

Research from around the world has thus far focused on general efficiency factors of local governments but has missed highlighting their relationship if any to effective asset management that will act to drive better performance. This research study, therefore, examined asset management practices in a local government office in Western Australia to make recommendations that could aid higher levels of efficiency in local government, a focus which has not been explored in previous research studies.

3.   Methodology

The purpose of this study was to examine asset management in a local government office and its correlation to good governance. The objectives of this study were:

- To determine the stages of the asset management procedures;
- To determine if life-cycle cost analysis (LCCA) is used to optimise the use of an asset; and if LCCA is not used, determine how an asset is optimised;
- To find out at which stage the greatest problems arise in relation to asset failure;
- Identify whether the government office uses reactive or proactive asset management strategies;
- To identify how capital funds for assets are distributed;
- To determine how the procurer and asset maintainers communicate with each other;
- To determine the strategic management techniques employed; and,
- To determine the extent that governance plays a role in asset management.

Finding out how, what and who manages assets in local government and obtaining their unconstrained expression of ideas was advantageous to this study and hence the use of qualitative research methodology was adopted.

Semi-structured interviews were conducted with a set of questions previously prepared and independently checked. Although the agenda was relatively set, this structure allowed the interviewer "to follow the respondent's train of thought and to explore tangential areas that may arise" (Bolderston 2012, 68). The interview questions aimed to assess facts as well as perceptions of the participants. The qualitative data

aimed to produce real-world information on behaviours, organisational procedures and beliefs of the target research group. This approach allowed less control and more revealing concepts to come forth. Participants at different responsibility levels were chosen to capture as broad a view as possible.

Although it was acknowledged that there were perceived limitations in measuring qualitative research, the expected benefits of a semi-structured interview with participants to gain insights into the case study problem were deemed worthwhile. Interviewing participants in their natural setting and gaining an in-depth view on the subject enabled an analysis of the data that explored the complexity of the problem. Participants were all volunteers and any ethical issues were explored in the first instance. Techniques were employed to uphold the validity of the research with the purpose to develop concepts to understand the subject organisation's struggles in asset management. This study was limited to four interviews with individual expert officers from one West Australian local government office. Notwithstanding that participant role and responsibilities within the local government may influence or constrain responses, this study is validated.

4.   Results and Analysis

4.1   Demographic Characteristics of Participants

The experience of participants in asset management varied between 11 years and 40 years. All participants had had experience in infrastructure asset management and had previous experience in asset management before holding their current role in this subject local government office.

4.2   Effective Asset Management

All participants valued effective asset management but had various opinions of what this meant, regarding customer expectations, capital funding allocation and ultimately how it can be achieved. Climate change and sustainability issues were appreciated by all participants, but solutions were unclear and business drive to achieve positive outcome in this area was lacking. Asset management decisions and advice were found to be not always properly understood by decision-makers, which was evident by the impracticality of asset management choices that focus on aesthetics and have been demonstrated by the lack of storage and associated risks not being fully communicated.

4.3   Life Cycle Costing

Although the benefits of life cycle costing seemed clear to all participants, it was not generally implemented for everyday projects in this local government office. Reasons why the full benefits of life cycle costing analysis had not been realised in this local government office could be due to the lack of quality data and resources but there was also doubt among participants about the usefulness of life cycle costs without an adjacent physical inspections program. Whilst one participant doubted the accuracy of life cycle costing and poor data, another lamented the lack of a well-defined maintenance inspection routine preventative program. All participants agreed that the initial feasibility stage held the greatest potential for error and that there was a potential absence of collaboration at this stage.

4.4   Risk Management

Risks were viewed differently by officers in this local government office and were highlighted through the numerous responses received from participants. For instance, one participant whose job is to collate asset data seemed more positive and risk averse about the data's uses than say a participant who actually uses the data in their job. This suggests that more improvements to the asset data management system are required before positive results become evident to users. Similarly, risks identified by some participants who help define capital funds against participants who use the capital funds were also different suggesting again that more strategies are required to eliminate the risks encountered here. Participant responses also highlighted a lack of good asset management decisions as well as a lack of spending on asset replacement and maintenance. The importance of more public consultation was highlighted by all participants in their responses. Each role held by participants in this local government is likely to influence what risks each would be exposed to and this fact may have influenced each of their responses under this category

4.5   Governance

Participant responses indicated there was a lack of control mechanisms to ensure meaningful communications that can be tracked, and which can be used to help collaboration between those who design or procure assets with those who maintain them. Whilst participants believe ISO 55000 is followed it was generally felt that improvements were still required to be fully compliant with this standard. The local

government office contractual arrangements were generally accepted by participants as effective but potential inadequacies existed in governance frameworks to control experience levels of bid evaluators and internal and external collaboration. Participant responses on governance were seemingly more confidently provided by those who held roles with higher responsibilities.

4.6   Collaboration

All participants agreed that collaboration is important in relation to asset management regardless of individual role and responsibilities. Most participants indicated that they believed communication was generally satisfactory in their local government office but did elaborate when prompted on where they believed inefficiencies existed. Inadequate external relationships with State government were identified as an ongoing issue and formalised collaboration channels between the designers and maintainers were also found to be lacking. Differing responses between participants were probably influenced by the issues they naturally encountered due to the positions they held.

4.7   Asset Management Strategies

When participants were asked if they believed their local government office was more reactive or proactive in their asset management strategies, there was a mixed response. However, it seems clear that both reactive and proactive asset management strategies exist in this local government office. It is also evident that participants all understood the importance of being proactive and valued proactive strategies to increase efficiencies. The role held by the participants did colour their responses; for instance, participants who dealt with customer complaints mentioned the end user in their responses concerning strategy. Others mentioned that there is an inadequacy in the asset management data quality and that opinions on this varied among participants according to their role and their data use. For instance, one participant in charge of improving the data quality believed much progress had been made and that the data was ready for people to start using to benchmark their decisions; however, another participant who actively uses the data does not believe this is so and highlighted the maintenance difficulties encountered resulting from an incomplete database.

4.8   Capital Funding

The distribution of capital funding in this local government office for the asset management portfolio needs to be better defined for all involved. The differing responses from participants indicated a lack of consistent thought within the organisation on this subject.

The responses from the participants showed this local government office does require improvements in their asset management strategies to realise their full potential. The participants recognised various risks and hurdles that need to be overcome to achieve better efficiencies in asset management.

5.   Discussion

The collation of concepts found in this study have either converged or diverged from the existing findings of researchers discussed in the literature review. Life cycle cost analysis is a tried and trusted method for asset managers and this study confirmed that this is true; however, researchers of the local government sector such as Amador-Jimenez and Mohammadi (2020) and Hurley, Ashley and Mounce (2008) have somewhat failed to fully highlight its importance, rather focusing on the importance of stakeholder engagement. If life cycle cost analysis is not implemented well due to poor data quality, asset life spans are unknown which could lead to unexpected failures or wastage due to premature asset replacement programs. Similarly, although research is evident that project phases can impact collaboration, the exact phase which causes the greatest problems had not been fully researched and identified but, within this study, was found to be the initial stages of project life. Poor choices at this stage can lead to less favourable asset outcomes and will likely mean more expenditure of capital funds, time and labour during asset life. Yetano (2009) and de Waal (2010) similarly realised this and reinforced the need for more research to be completed regarding the implementation of performance management systems in local government. Similarly, a lack of technical experience and a lack of storage space for asset spares can also result in the same consequences. Additionally, it was found that local governments could benefit from control mechanisms to formalise internal and external communications. Whilst no researchers within the literature review explored a potential lack of technical experience and storage space and its impacts on good asset management in local government, Hurley, Ashley and Mounce (2008) suggest introducing incentives to facilitate effective decision making through effective collaboration which would introduce communication controls and pathways. Ryan and Ng (2000) believed a defined corporate governance framework was missing in Australia. If effective asset

management choices are not driven as key priorities, then 'business as usual' attitudes will reign resulting in increased future asset renewal expenditures for neglected assets. Assets that are neglected do not reach their full life cycle potential causing waste and ultimately costing an organisation more in the long run.

The general awareness of climate change and sustainability issues found in this study aligned with general research findings on risk management and explained that the lack of action matched the lack of concern. Hood and Smith (2012) further reinforced that the implementation of risk management is important to success but do admit that further research is required to effectively evaluate risk management outcomes to ensure repeated successes. However, if local governments have not prepared their assets to meet potential changing conditions, huge impacts on communities will result in the form of shut downs and inadequate assets in place to meet community needs. Good governance and good community engagement similarly aligned in both research findings and this study and confirmed the relationship and importance of both. In fact, Nel (2019) suggests that risk management and internal controls are components of corporate governance which need to be synchronized alongside enterprise risk management to achieve optimum outcomes. Consequences of poor engagement are far reaching if service levels are not correct, leading to more time, labour and funds used to correct poor asset maintenance decisions. The creation of industry partnerships could potentially benefit collaboration efforts to enable sufficient communication. In conclusion this discussion found many drivers that could potentially enable effective asset management decisions and the consequences of these drivers being ignored.

6.   Strengths of this study

In gaining an enhanced understanding of issues and problems faced within the local government office, the strength of this study lies in: educating subject organisation of these issues and problems, and by recommending a framework of solutions to improve asset management efficiencies and performance. Qualitative data was obtained through interviews with local government officers which was relevant and insightful into the problems faced. The opinions, observations and experiences of the participants provided the study with in-depth data. All participants had various roles and levels of responsibility which also enabled different perspectives of the subject to be obtained and for ideas to be confirmed.

7.   Conclusion

The purpose of this study was to examine asset management procedures in a local government office and assess their correlation with good governance. The research was designed to obtain insights into problems faced in this sector and to determine best asset management strategies to address the problems revealed. The key points found in this paper, regarding collaboration, life cycle costing, strategic management, funding allocation and what defines effective decision-making in relation to asset management, are in direct relation to the subject local government office and will enable possible initiatives towards better overall efficiencies. This research work is relevant as it addresses the consequences of poor asset management and its recommendations will go directly to assisting the subject local government office to achieving enhanced performance goals. By examining asset management professionals in their natural setting and by gaining an in-depth view on the subject, the complexity of the problems faced were identified but not generally found to be unique to one department in the local government office.

8.   Recommendations

Building upon the results and findings discussed above, it can recommended that:

- A maintenance philosophy be rolled out

One key component missing that was found in the subject local government office was, the absence of a maintenance philosophy that was understood by the asset management team and those working in tandem. These recommendations are aimed to assist local government asset managers to improve asset management efficiencies. The study identified 6 key improvement areas that would be included within the maintenance philosophy. Hence it is recommended that:

- Sinking-funds be introduced for asset renewal projects (See Figure 1 below, with reference to graphic-recommendation-1, namely R1, across Stages 1, 5 and 6, within Workshop meeting, entitled, 'C')

The findings in this study indicated that there was a backlog of maintenance inspections, repair and replacement projects and that budgets and resources were not considered adequate to meet demand. In other words, no set-aside revenue over a time-period to fund future long-term expenses and no reserve (sinking) fund for future maintenance; therefore, sinking-funds could play a crucial beneficial role in better

managing future maintenance project expenses. Future business expenses will be known and planned for as opposed to unknown which is financially dangerous.

- There be investment in resources and equipment to address poor quality data (See Figure 1 - R2, Stages 5 and 6, Workshop meeting entitled as 'C', regular knowledge sharing meetings)

This study identified substantial issues with data quality. Poor data quality impedes progress to establishing accurate life cycle costings. To fix the issues surrounding this an investment in resources and time is required for data collection and maintenance.

- A standard suite of products be introduced (See Figure 1 - R3, Stages 1, 2 and 6, regular knowledge sharing meetings)

In this study a key issue identified by the experts was that the subject local government was continuously introducing new products. This was found to be unsustainable because of the limited storage space available for spares and the reduced maintenance efficiencies due to crews having to work with numerous products. Limiting products used within the local government to a standard suite of good quality and durable products is recommended.

- Communication Framework – Governance monitoring and communication control mechanisms be implemented (See Figure 1 - R4, Stage 3 and 4, All workshop meetings, regular knowledge sharing meetings, regular project meetings)

The findings in this study indicated that there were no established communication lines that ensured continuous improvement in asset management. Specifically, there is a need for the local government office to have control mechanisms in place to formalise internal & external communications. By providing structure to communications, Governance can aim to manage knowledge in the business and better manage data.
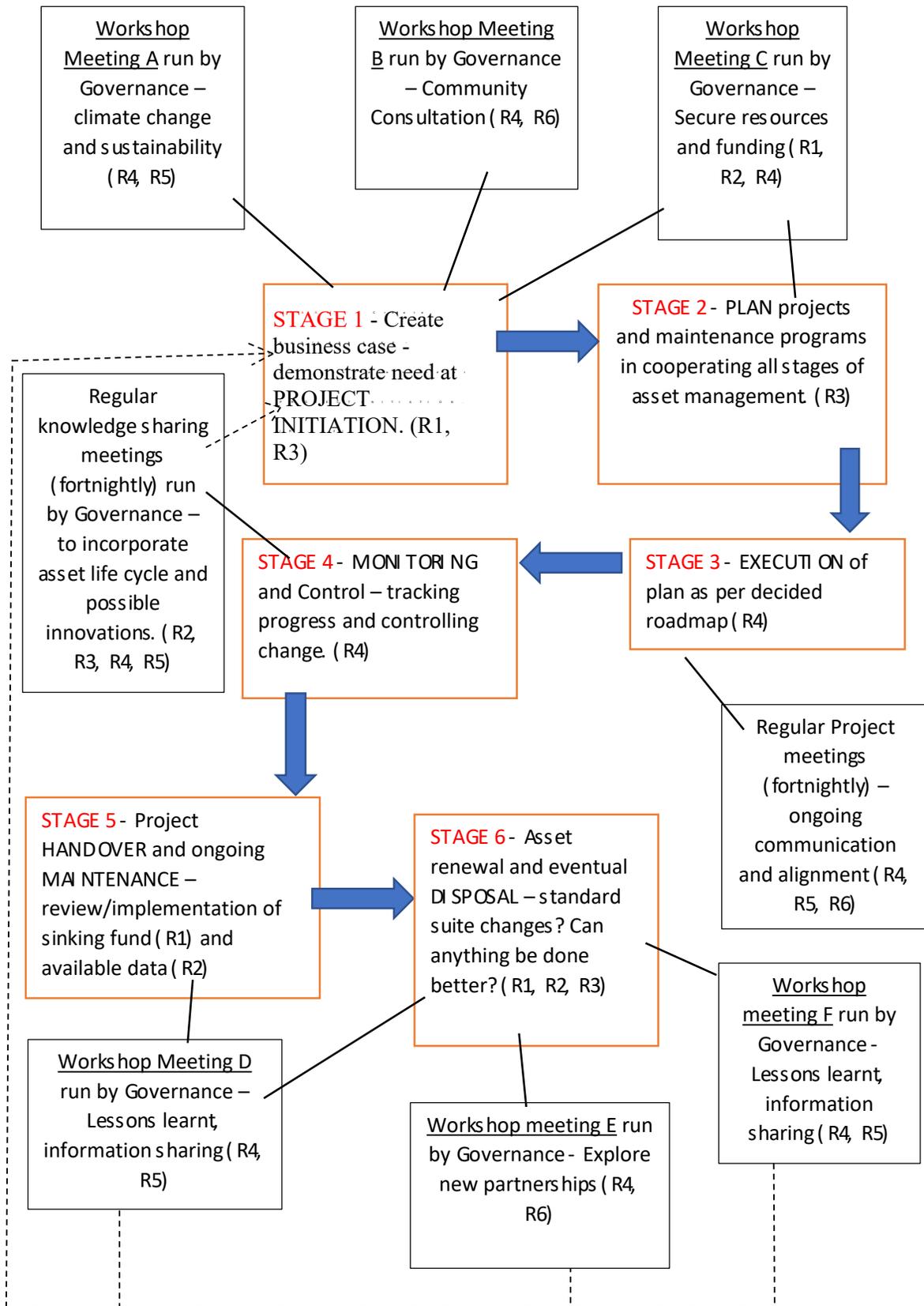
- Climate Change and Sustainability champions be recruited (See Figure 1 - R5, All stages, Workshop meetings A, D and F, regular knowledge sharing meetings, regular project meetings)

This study found that struggles existed to introduce solutions to address climate change and sustainability and that a lack of concern prevailed to encourage inaction. It is recommended that key personnel – champions - be introduced – to work in all the stages of asset management, whose roles' key performance indicators include climate change and sustainability responsibilities that are integrated into their day to day priorities. These priorities would align with corporate targets in relation to climate change and sustainability.

- Community Partnerships be introduced and formalised (See Figure 1 - R6, Stage 1, Workshop meetings B and E, regular project meetings)

This study indicated that ineffective relationships existed with state government organisations. The use of community partnerships to aid collaboration may be a technique going forward to ensure effective collaboration and decision-making. External communications are vital with the community and a formalisation of community partnership could also add value to asset management decision-making.

The inclusion of all recommendations strives to achieve effective asset management decision-making. The major goals of any asset manager are to improve asset value and performance, enhance business growth through effective asset management, grow stakeholder confidence, effectively manage risks and make reliable decisions. The recommendation above (presented graphically in figure 1 below) seek to enhance current approaches.

Workshop Meeting A run by Governance – climate change and sustainability (R4, R5)

Workshop Meeting B run by Governance – Community Consultation (R4, R6)

Workshop Meeting C run by Governance – Secure resources and funding (R1, R2, R4)

STAGE 1 - Create business case - demonstrate need at PROJECT INITIATION. (R1, R3)

STAGE 2 - PLAN projects and maintenance programs in cooperating all stages of asset management. (R3)

Regular knowledge sharing meetings (fortnightly) run by Governance – to incorporate asset life cycle and possible innovations. (R2, R3, R4, R5)

STAGE 4 - MONITORING and Control – tracking progress and controlling change. (R4)

STAGE 3 - EXECUTION of plan as per decided roadmap (R4)

Regular Project meetings (fortnightly) – ongoing communication and alignment (R4, R5, R6)

STAGE 5 - Project HANDOVER and ongoing MAINTENANCE – review/implementation of sinking fund (R1) and available data (R2)

STAGE 6 - Asset renewal and eventual DISPOSAL – standard suite changes? Can anything be done better? (R1, R2, R3)

Workshop meeting F run by Governance - Lessons learnt, information sharing (R4, R5)

Workshop Meeting D run by Governance – Lessons learnt, information sharing (R4, R5)

Workshop meeting E run by Governance - Explore new partnerships (R4, R6)

Figure 1. Recommendation: developed Flow-diagram illustrating placement of asset-management procedures throughout asset-life.

10.   References

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