



THE IMPACT OF OBSOLESCENCE IN HEALTH PUBLIC PRIVATE PARTNERSHIP PROJECTS

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Obsolescence is a major challenge in Infrastructure implementation around the world. South Africa has been implementing PPPs close to 20 years now and some of the first projects will soon come to closure as the end of their term is drawing nigh. Obsolescence is generally mitigated by stipulating that there should be a general overhaul of the facility very close to the end of term in order to preserve and elongate the economic life of the project. However, the health projects are very much dependent on the ever-changing technological developments for their optimal performance. Some of the new technological equipment might require infrastructural adaptations. Through interviewing designers, managers and clients the research sought to garner information that could be helpful for future projects in this sector and that could be adapted to other sectors as well. Although it was found that obsolescence was not properly catered for, the experiences of the aforementioned respondents were valuable in proposing general considerations in future projects. It is hoped that lessons will be instructive and beneficial to the other countries which are new to the PPP procurement method, especially when it comes to the implementation of the health facilities.

Keywords: Infrastructure, Economic life, Optimal performance, Designers, Procurement.

1 INTRODUCTION

The problem of obsolescence on infrastructure projects emerged in America in the 1920s and in the 1950s it solidified as a dominant paradigm that required comprehension (Abrahamson 1963). According to Yelland (2015), obsolescence is a major problem in South Africa, though the government has invested large amounts on the construction of new power plants, freeways, hospitals, schools, water pipes and dams. According to Nene (2015), South Africans regularly experience infrastructure failure, mainly unreliable water supplies, roads that are impassable when it rains, trains that break down or poor communication linkages giving a very strong indication that the bulk of the current infrastructure in South Africa is obsolete. With Public Private Partnerships one of the key stipulations in the contracts is that the facility be returned to the client ministry in a predetermined condition still able to handle a specified utility capacity (SANRAL 2013). This shows that at least when the infrastructure is handed over to the government it should be free from obsolescence for several years post hand over. In this study, the problem of obsolescence in the health sector given its technological dynamism is assessed to garner instructive lessons about its effectiveness.

2 BACKGROUND

Obsolescence is described as being old-fashioned and no longer useful by the Oxford English Dictionary. However, Butt, Umeadi and Jones, (2010) submit that factors that cause obsolescence are not only conventional such as aging, wear and tear, but rather contemporary factors including energy consumption efficiency, environmental pressures such as reduction of carbon or greenhouse gas emissions. The others are legislations or regulations changes, change of use, clean and waste water management, water quality and resources, land use, land contamination, soil quality, changing occupier or end user demands, sustainable waste management demands, ecological concerns, health and safety, and climate change. It is on that basis that Thomsen and Flier (2011) posit that obsolescence can have a wide range of causes, like physical, economical, financial, functional, locational, environmental, political, market, style and as well as control obsolescence. From the above literature, it is therefore clear that obsolescence is caused by external and internal factors.

2.1 Internal Obsolescence

According to Butt, Umeadi, and Jones (2010), irrespective of whether obsolescence is in value or function or both, internal obsolescence in a component or built asset is due to factors that exist within the component or built asset. It could further be divided into:

- Functional obsolescence (functional and technological component)
- Physical deterioration

2.2 External Obsolescence

Butt *et al.* (2010) went further to define external obsolescence as a temporary or permanent impairment in value or usefulness of a built asset due to factors outside the system such as change in existing or advent of a new environmental legislation, social forces/pressure groups, arrival of new technology, fluctuation in demand, inflation of a currency, and so on. This in turn could be divided into the following categories:

- Locational Obsolescence
- Economic obsolescence
- Climate Induced Obsolescence

3 OBSOLESCENCE IN THE HEALTH PUBLIC PRIVATE PARTNERSHIP PROJECTS

3.1 Public Private Partnerships (PPPs)

Public Private Partnerships (PPPs) are primarily a contractual approach to the delivery of infrastructure goods and services traditionally provided by the public sector or by private operators, subject to tight ‘command and control’ regulation, such as public utilities (Menard 2013). The South African National Treasury PPP Unit (2007) posits that international experience on PPPs indicates that they likely offer value for money in major capital projects. Menard (2013) and Hall (2015) state that PPPs have been high on the agenda of public decision makers, think tanks and consulting firms since 1990s. However, Hall (2015) gives a different view on PPPs, and states that PPPs are used to conceal public borrowing, while providing long term state guarantees for profits to private companies. Hall (2015) also differs from the South African

National Treasury PPP Unit (2007) and Menard (2013) by contending that PPPs are an expensive and inefficient way of financing infrastructure and services as they suffer from a fair amount of corruption and are often used to conceal public borrowing. Figure 1 below will demonstrate that there is a big difference between public ownership and control and PPPs where the private sector oversees the operations of the facility throughout the tenure of the contract.

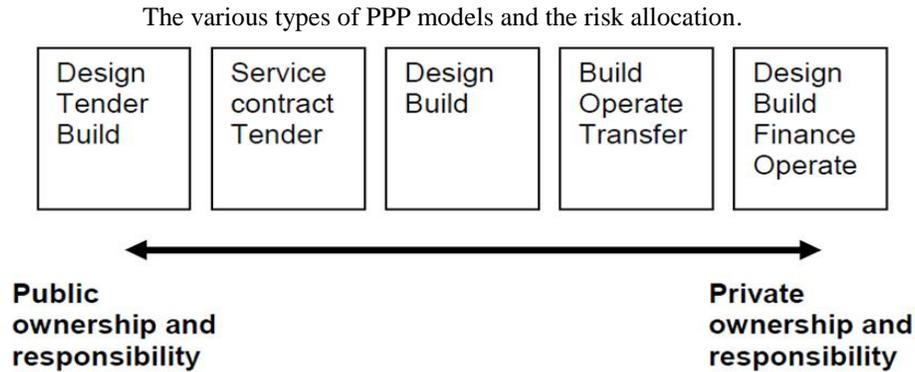


Figure 1. Public and private ownership continuum. Source: Alexandersson and Hulten (2007).

3.2 Obsolescence in the Health Sector

The delivery of health care is changing rapidly, partly in response to altered demands on health-care systems, such as shifting patterns of disease and rising public expectations, and in response to the opportunities offered by new technologies (McKee and Healy 2000). By contrast, the quest to minimize the risk to which the parties to public–private contracts are exposed has meant that the contracts are often specified in great detail, with large penalties for any party introducing changes. This lack of flexibility has meant that the configuration of some hospitals has been out of date even as early as the day they are opened (McKee, Edwards, and Atun 2006). The problem is not unique to public–private partnerships but the rigidity of contracts makes the solution more complex. Incorporating flexibility into the original design is possible without adding costs for constructors or operators but it does impose additional design costs. There are few incentives for consortia to build in flexible design solutions since the cost of future modifications fall on the client. It is generally accepted that the use of public–private partnerships has been effective when used to finance transport infrastructure (Monbiot 2001) this success has yet to be repeated in the health sector. In South Africa, there is a clause to allow the facility to be overhauled very close to the end of term. It is the intention of this research to assess the effectiveness of this contractual intervention to alleviate obsolescence in the health sector.

4 METHODOLOGY

The research was mostly descriptive research. According to Leedy and Ormrod (2005), the term descriptive research involves identifying the distinctiveness of an observable fact or delving into possible parallels in the midst of two or more phenomena. Glass and Hopkins (1984) state that descriptive research does not fit neatly into the definition of either quantitative or qualitative research methodologies but instead it can utilize elements of both, often within the same study. The research comprised of a convenience sample of 20 respondents comprising clients (government departments and municipalities), architects and project managers based in Gauteng particularly those that have worked on PPPs before. Snow balling was used to identify

respondents who were then used to refer researchers on to other respondents (Atkinson and Flint 2001). Atkinson and Flint (2001) further state that although the use of snow balling violates the principles of sampling it provides a means of accessing vulnerable and more impenetrable social groupings. In this case, it was the only way of knowing exactly who was intimately involved in the projects by contacting other people who were involved and then using them as contacts to their colleagues. Open-ended questions were used to give full understanding of the respondent's impression or experience, also allowing for a degree of flexibility and probing of new issues that may unveil new insights (Knight and Ruddock 2008). The Thematic Analysis method was used to identify, analyze and report on patterns (themes) within data from interviews (Braun and Clarke 2006).

5 DISCUSSION

The interviews revealed that there is no broad understanding of obsolescence as with most players it is limited to functional obsolescence and economic obsolescence. The detailed observations are demonstrated in Figure 2 below with the detailed discussion below. The figure shows which percentage of the respondents identified with the different types of obsolescence.

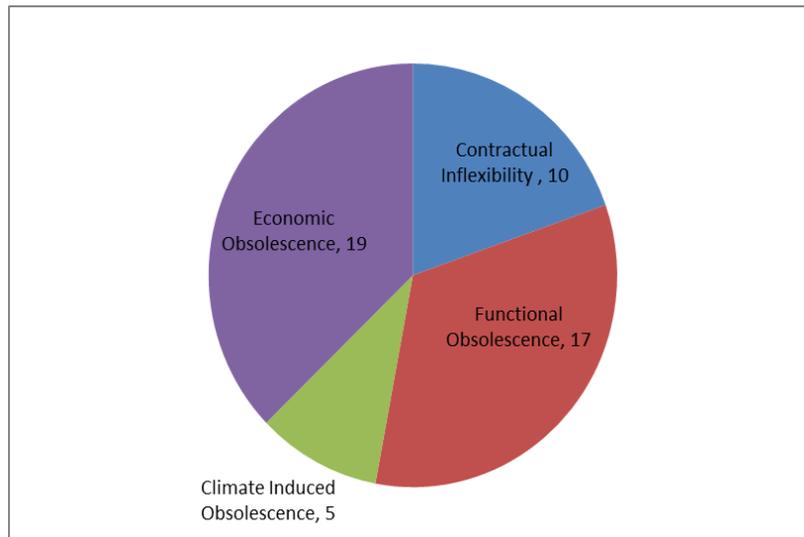


Figure 2. Respondents awareness of different types of obsolescence.

5.1 Contractual Inflexibility

The PPPs contract is very much influenced and adapted from the UK PFI structure which was used as blueprint. In South Africa, it was adapted to reflect the unique political exigencies of economic transformation articulated through the overarching Black Economic Empowerment (BEE) policy. There is a special legislation dealing with BEE in PPPs in South Africa. Thus, the incorporation of the previously disenfranchised members of the society in these contracts is mandatory and it is regarded as a contractual deliverable. It is the responsibility of the main member of the consortium to ensure performance parity with these incorporates by training their staff and monitoring their general conduct. If this is not done well an economic obsolescence could result, as the facility could be run very inefficiently. This requirement is non-negotiable in South Africa.

5.2 Functional Obsolescence

The practitioners appear to be only aware of this type of obsolescence which is catered by the periodic replacement of critical equipment in the health facilities usually after five to six years. There is also an extra requirement that at least two years before the expiry of the contract the equipment should be replaced to ensure the economic lifespan is extended beyond handover to the government. However, the thinking appears to be catering only the replacement with the current technology as a complete shift of technology is not accommodated. In a highly dynamic sector such as the health sector this could lead to complete redundancy of the facility as new technology could lead to drastic client dissatisfaction.

5.3 Climate Induced Obsolescence

The South African PPPs are designed in such a way that they comply with the general legislative requirements but don't go beyond in incorporating the general global trends in environmental considerations. This is primarily because although South Africa is a leader in green buildings in Africa it is still a developing country with a lot of new buildings not fully embracing the new environmental considerations. The PPP stock in the health sector could also be looked in that light.

5.4 Economic Obsolescence

The economic obsolescence is covered by general contractual stipulations with regards to accommodating currency fluctuations and fluctuations in demand. This is to be expected, as for the private players the main consideration is profit maximization and the traditional methods of self-protection are deployed. The client (the government) is expected to cover shortfalls if the numbers drop below a certain stipulated figure. Although, in this case, most of facilities are availability PPPs where a certain number of beds must be available at any one time for usage by the government, and the consortium is paid for these, regardless of the whether they were fully utilized or not.

4 CONCLUSION

The South African PPPs contractual Structure does not take a particular consideration of obsolescence in its totality. Although, there appears to be some consideration in this regard, it is more to protect economic interests by both parties rather a concerted effort to mitigate the occurrence of debilitating effects of all forms of obsolescence. It is also noted that the rigidity of the PPP contractual structure is not amenable to dynamic external environmental changes that could necessitate the overhaul of the facilities' equipment to improve efficiency and competitiveness. Although functional obsolescence is a generic consideration in every facility, these first crop of projects have been instructive going forward by demonstrating that obsolescence is multi-faceted and its incorporation should be reflected in the contractual modifications that accommodate the necessary flexibilities.

References

- Abrahamson, M. D., *An Architectural History*, The University of Chicago Press, Chicago, USA, 1963.
 Alexandersson, G., and Hulten, S., Competitive Tendering of Regional and Interregional Rail Services in Sweden In. *European Conference of Ministers of Transport (2007)*, ECMT, Paris, 2007.

- Atkinson, R. G. and Flint, J., *Accessing Hidden and Hard-to-Reach Populations: Snowball Research Strategies*, 2001. Retrieved from University of Surrey Social Research on February 3, 2010. Update: <http://sru.soc.surrey.ac.uk/SRU33.html>.
- Braun, V. and Clarke, V., Using Thematic Analysis in Psychology, *Qualitative Research in Psychology*, 3(2), 77-101, 2006.
- Butt, T., Umeadi, B., and Jones, K., Sustainable Development and Climate Change Induced Obsolescence in the Built Environment, *International Sustainable Development Research Conference*, Hong Kong, 2010.
- Glass, G. V. and Hopkins, K. D., *Test Bank for Statistical Methods in Education & Psychology* (2nd ed.), Prentice-Hall, Englewood Cliffs, NJ, USA, 1984.
- Hall, D., WHY PUBLIC-PRIVATE PARTNERSHIPS DON'T WORK: The Many Advantages of the Public Alternative, 2015. Retrieved from Public Services International (PSI) on January 18, 2017.
- Knight, A. and Ruddock, L., *Advanced Research Methods in the Built Environment*, Wiley-Blackwell, West Sussex, 2008.
- Leedy, P. and Ormrod, J., *Practical Research: Planning and Design*, Merrill Prentice Hall, Upper Saddle River, NJ, USA, 2005.
- McKee, M. and Healy, J., *The Role of the Hospital in a Changing Environment*, 78, 803-10, 2000.
- McKee, M., Edwards, N., and Atun, R., Public-Private Partnerships for Hospitals, *Bulletin of the World Health Organization*, 84(11), 890-896, 2006.
- Menard, C., *Is Public-Private Partnerships Obsolete? Assessing the Obstacles and Shortcomings of PPP*, Routledge, Oxford, 2013.
- Monbiot, G., *Captive State: The Corporate Takeover of Britain*, Pan, London, 2001.
- Nene, N., South Africa's Budget 2015, Brandsouthafrica.com, 2015. Retrieved from <https://www.brandsouthafrica.com/investments-immigration/economynews/south-africa-s-budget-2015-the-full-text> on January 19, 2017.
- SANRAL, S. A., National Road Update, SNA, August 13, 2013. Retrieved from http://www.nra.co.za/content/National_roads_update13-08-2013.pdf on January 18th, 2017.
- South African National Treasury PPP Unit, Introducing Public Private Partnerships in South Africa, PPP, 2007. Retrieved from <http://www.ppp.gov.za/Documents/Final%20Intro%20to%20PPP%20in%20SA%2021%2009%2007.pdf> on January 11, 2017.
- Thomsen, A. and Flier, V. D., *Understanding Obsolescence: A Conceptual Model for Buildings*, University of Technology, Department of Real Estate and Housing, Delft, Netherlands, 2011.
- Yelland, C., The Real Reasons for Power Outages in South Africa, Mybroadband, 2015. Retrieved from <http://mybroadband.co.za/news/energy/128942-the-real-reasons-for-power-blackouts-in-south-africa.html> on January 22, 2017.