# Chapter XII
# Measuring IS Success in SMEs in Samoa

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## ABSTRACT

*Information technology (IT) can either increase or decrease the 'digital divide.' Developing nations, such as Samoa, can leverage their economies with investment in IT, but investment is often determined by past information systems (IS) success. Exploratory research was conducted into the assessment and measurement of IS success by small and medium sized enterprises in Samoa, and the effect on IT investment. It was found that information quality, system quality, use, user satisfaction and financial impacts were the main dimensions according to which success was assessed, while intention to use, and cultural impacts were not usually assessed. Culture acted more as a moderator of the assessment. Measurements focused more on system related measures. Assessment on all dimensions impacted on future investment in IT.*

## INTRODUCTION

Information technology (IT) can drive and leverage the economic success of a country, but it can also either increase or decrease the "digital divide" between developed and developing nations (Purcell & Toland, 2002). The South Pacific island nations can be considered developing nations. Encompassing some 1.8 million people who are culturally diverse and scattered over 32 million square miles of ocean, they are isolated from world economic markets (Purcell & Toland, 2002) and lag behind the rest of the developed world in terms of IT uptake (Pacific Enterprise Development Facility & International Finance Corporation, 2003).

For IT, or information systems (IS), to provide economic leverage, it requires both investment and some measurement of its success because, it could be assumed, investment in IT would be largely driven by the success of past IT investments. However, irrespective of whether in developed or developing nations, investment often occurs without measurement of its success, and this has led to a "productivity paradox" that questions whether the productivity returns brought about through IS investment justify the resources being supplied to it (Ives, 1994). Measuring the success of IS is, therefore, an issue for organizations everywhere. This is even more the case for developing nations like those in the South Pacific, where investment in IS/IT can mean investment in minimizing the digital divide.

Small- and medium-sized enterprises (SMEs) make up the bulk of the economies of the South Pacific nations, and the livelihood of their economies is much dependent on the success of their SMEs (Pacific Enterprise Development Facility & International Finance Corporation, 2003). Measurement of the success of IS in these SMEs thus becomes an important step towards providing evidence of return on investment in IT and thus support for further investment. However, it has been noted that the impact of investment in IT in the Pacific region is difficult to quantify (International Finance Corporation, 2002; Olu-timayin, 2002; Pacific Enterprise Development Facility and Corporation, 2003).

The measurement of the dependent variable or success of IS at the organizational level has proven to be an elusive and challenging task. The plethora of measures, frameworks, and models that attempt to define and measure IS success evidences this. However, these studies have focused mainly on large organizations in developed countries, and the measures developed might not be entirely appropriate for SMEs, and even less so for those in developing countries.

This study thus set out to explore the measurement of IS success in SMEs in the South Pacific, and its impact on future IT/IS investment.

## BACKGROUND

Measuring IS success, or effectiveness, is a well-explored area. A number of frameworks exist that synthesize past research and guide future research. One of the most widely cited pieces of research and resultant framework is that of DeLone and McLean (1992), in which they found that most measures fell into one of six dimensions: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact.

Acknowledging the rapid changes brought about by developments such as the Internet, in 2003, DeLone and McLean presented their updated model, which incorporated some refinements to the original model, based on the previous decade's research. In particular, they added Service Quality as a measure of assurance, empathy, and responsiveness of IS services. They also aggregated individual and organizational impacts into Net Benefits at the group, industry, and national level. The model is a causal model, and many of the interrelationships between the variables have been empirically tested and validated by other researchers (Rai, Lang, & Welker, 2002).

Another model that reviews and categorizes previous literature was proposed by Grover, Jeoung and Segars (1998) in the form of a conceptual framework for IS evaluation. They found that research seemed to fall into the four main areas: criteria demonstration research, measurement research, criteria relationship research, and antecedents of IS effectiveness research. Six effectiveness classes, based on evaluative referent, unit of analysis, and evaluation type, were defined. Most of these classes represent a similar success variable to those of DeLone and McLean (1992), although they viewed System Quality as an antecedent, rather than as a dimension of IS effectiveness.

Smithson and Hirschheim (1998) also developed an IS Success framework that categorized the evaluation of IS effectiveness into three zones,

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