Dynamics and Future of the Information and Communication Technology Sector in Canada

Shahzad Khan, University of Ottawa, Canada
Bijan Raahemi, University of Ottawa, Canada

ABSTRACT

The Canadian Information and Communication Technology (ICT) accounted for $60.6 billion to Canadian Gross Domestic Product (GDP) by 2006. In this paper, we analyze the dynamics and the key factors involved in the downfall of the ICT sector during the period of 2000-2003. In particular, we discuss factors including low-cost capital, irrational forecasts, excessive investment in innovative solutions, excessive demand, lack of vision, lack of product differentially, and poor business models. The analysis depicts the current trend in telecom sector, and predicts what future holds for it. The study forecasts the rate of growth of the ICT telecommunication sector till 2015, draws a comparison of GDPs with and without telecom contributions, and demonstrates the impact of telecom sector on the ICT and Canadian economy. We also refer to disruptive technologies that may cause a significant impact on the economy in the near future.

Keywords: dot com downfall; information and communication technology (ICT); ICT downturn; ICT future trend

INTRODUCTION

Information and communication technology (ICT) encompasses various types of digital technology helping organizations and individuals to use, store, and communicate information. The period of 1997-2000 brought unprecedented innovations and wealth in the ICT sector, in North America. The booming years witnessed the time where innovation peaked, telecom bandwidth removed many barriers, and new startups were born. The ICT played an active and vital role during that period and from there on became one of the important ingredients impacting the North American economy. For instance, between 1997 and 2000 the
Gross Domestic Product (GDP) contribution from ICT in Canada increased to 84% (StatCanada, 2001).

However, the boom was short-lived and shadowed over by the bust that lasted from 2000 to 2003. As a result, many ICT companies had their stocks plumed to their record low, forcing them to massive lay-offs. Causes of the downturn in the ICT sector have widely been studied with the goal to build a model that can accurately predict the downturn cycle. There is no such model available today that can predict the next downturn with acceptable accuracy. This study, however, is an attempt to find the causes of the bust, which can help to understand the basic factors involved in the downfall of the ICT sector. These causes then can be used as a baseline in predicting the downfall not only in North America, but around the globe. Our study can be augmented either as a supplement or a reference in creating a model that may predict the downturn cycle in the future.

This study reveals that there are two players mainly responsible for the downfall of the ICT. One is the financial institution that created a conducive environment for ICT boom and then the bust. Second is the ICT industry itself. Figure 1 depicts a conceptual model showing the factors involved within the financial and ICT industry in creating the bust. Working together, both the ICT and finance sectors created the dynamics such as excessive supply, shortfall in sales, and inexplicable business models, resulting in many ICT-based companies going bankrupt or loosing their market share. We will discuss these factors in detail in the next section.

**DYNAMICS AND CAUSES OF DOWNTURN IN THE ICT SECTOR**

**Low-Cost Capital**

Over-investment in the ICT sector was one of the major reasons that gave rise to the bubble. This happened because the cost on investment was too low. According to the F. Hayek—the noble prize winner economist—if the cost is too low, the risk of excessive investment increases; and when the interest rate is too low, the probability of this risk multiplies. This is what happened in North America. Low interest rates and low cost fueled the boom and then the bust. The Economist published an article in its September 28, 2002, issue highlighting that: "The recent business cycle in both America and Japan displayed many “Austrian” features. Hayek argued that the natural rate of interest could rise if faster productivity growth increased expectations about profits and hence investment opportunities. This is what happened in Japan in the 1980s and in America in the 1990s. If such a shift in investment occurs, central banks need to raise interest rates. But because inflation was low (and because Austrian economics had long gone out of fashion), the Fed and the Bank of Japan failed to do so. The cost of capital fell below its expected