TOWARDS FORECASTING BUSINESS PREPAID MOBILE TELECOMMUNICATION USING CONNECTIONIST MODEL

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ABSTRAK

Khidmat telefon mudah alih pascabayar merupakan suatu keperluan masyarakat dan telah menyumbang kejayaan yang besar dalam bidang perniagaan. Sehubungan dengan itu, rangkaian telefon mudah alih telah berubah kepada penghantaran data yang lebih tinggi dan juga transmisi data berasaskan paket serta menjurus kepada ciri-ciri multimedia. Fakta ini telah memberi peluang terhadap beberapa teknologi mudah alih baru yang lebih menarik. Pada masa ini, kemajuan terkini dalam industri telekommunikasi telah menarik ramai pengguna untuk menggunakan telefon mudah alih dan mengakibatkan pembekal telekomunikasi mengaut keuntungan besar setiap tahun. Walau bagaimanapun, membuat peramalan keadaan perniagaan dalam bidang ini merupakan sesuatu yang sukar dilakukan kerana data diambil berdasarkan tempoh perjalanan masa. Justeru itu, kajian ini mencadangkan rangkaian neural sebagai alternatif untuk meramal keadaan perniagaan mudah alih. Di dalam kajian ini, data trafik telekomunikasi diperolehi dari Celcom khususnya Khidmat Kawalan Bertuju (SCP). Rangkaian neural telah dilatih dengan data tersebut untuk memberi peramalan urusniaga.adalah diharapkan, hasil daripada kajian ini dapat membantu Celcom dalam merancang perniagaan mereka kelak. Hasil kajian ini juga telah membuktikan kesahihan dan kebolehpercayaan rangkaian neural di dalam melaksanakan peramalan perniagaan dalam bidang telekomunikasi pascabayar mudah alih. Pencapaian dari pembangunan model perambatan balik telah memberi ketepatan melebihi 97 peratus. Rangkaian neural dapat mengambil rekod data panggilan menjurus kepada peramalan perniagaan telekomunikasi pascabayar serta menjadikan peramalan lebih pantas dan senang digunakan.

ABSTRACT

Prepaid mobile service has become a necessity to the society and contributed success to many businesses. Realizing its importance, the mobile networks are moving towards higher data rates and packet oriented data transmission and mobile having more multimedia features. This fact has open end opportunities for new and more attractive mobile technologies. However, forecasting the business trend in this domain is a difficult task as it involves time dependency data. Hence, this study proposed a connectionist model as an alternative for forecasting the mobile business trend. In this study, the teletraffic data was gathered from Celcom Service Control Point (SCP). Neural network was trained with SCP data to forecast Celcom mobile business trend. This result will help Celcom in their business planning. This study has proven the capability and reliability of the connectionist model in performing the forecasting business prepaid mobile telecommunication. The performance of the back propagation model with the accuracy above 97 percent is satisfactory. The model is able to capture data from the call event records towards forecasting the trends of business prepaid mobile Telco, thus making it short and simple to use.

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Tengku Halim Tengku Othman @ Tengku Ramli
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Chapter 1: INTRODUCTION

Mobile telecommunication or Telco industry is considered as a competitive industry nowadays. New Straits Times in its Business Times section on Oct 13, 2003 has reported that Telco industries are competing with each others in serving the latest prepaid services to customer by introducing new packages, reducing call rates and other interesting packages. Celcom, Maxis and DiGi are among the Telco providers or carriers in Malaysia.

There are two types of subscriber packages in mobile Telco which are known as postpaid and prepaid services. Currently, Telco business nowadays is talking about the prepaid service since it giving benefit for provider and users. According to Lucent Technologies (1998), prepaid service is known as service that enables customers to pay in advance for their call and other service features. This frees the customer from the inconvenience of handling regular bills or signing a contract, with the result that customer cash flow is optimised and fraud is minimised. Christensen (2000) also described prepaid or prepay are not unlike postpaid subscribers in sense the subscribers have certain basic needs and desires.

Prepaid subscribers have their own number of options when recharging their accounts. Other benefits by using prepaid include allowing student and international travellers to budget their call usage and controling their monthly spending. Besides that, each prepaid mobile serves different technology between its packages produced by the carriers such as the voice billing, roaming services, short message service, instant messaging and others. For the increasingly savvy of technology and its capabilities, the mobile device become a device to make lives not just easier but higher quality lives. Many of these services will be paid in advance before

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