

Future Problem Solving Programme
1997 Qualifying Problem - Cashless Society
Middle/Senior Division

New Zealand with its small, relatively affluent society has been chosen by the developers of many recent high-tech innovations as a testing ground as it is seen to be a microcosm of a developed economy and society, small enough to make data gathering easy. Early in the 21st Century, the first large scale trial of smart cards was initiated in NZ and was quickly followed by in-home EFTPOS machines. Now, in 2021, New Zealand is the first country in the world to be truly cashless with the introduction of the latest adaptation of smart-card technology, the Barta-card. Over the last three years all citizens have been issued with their cards and now all bank notes and coins have been phased out to be totally replaced by Barta-cards.

Barta-card are personalised for each owner with an eyescanner chip embedded in one corner. The card can only be activated by the eyescanner which recognises the unique retinal patterns of its owner and will automatically shut down after three inaccurate scans. Each card has several programmable chips in it which can hold up to five pages of information and as well as financial information, also incorporates personal identification details such as a driver's license, IRD number and such medical details as the owner wishes to have on record and can be used as a credit card. All monetary transactions will take place through the Barta-card and the associated Barta Homestations which have been issued to every home and business in the country. Homestations are linked, through modems, to the bank of the owner's choice and can also be connected to Internet. Daily monetary requirements can be down-loaded from the homestation to the Barta-card, or, if the owner needs more money throughout the day, reloads can be made from commercial homestations, much like the old ATM machines. Money can also be downloaded from Barta-cards to homestations so that people are able to make payments for services directly. Portable homestations are available on request.

The Green family are a typical NZ family, preparing themselves for a day in the cashless society. Craig is in a hurry because his FPS team are meeting to discuss their fundraising for their trip to the International Finals in London. Petra slides her palm onto the homestation palmprinter which recognises her hand print and waits for the recognition beep before activating the cards of each of her three children for the day. First she down-loads the information from the previous day's use to be stored in the separate records for each family member. Later she will print these out to check on the card's usage. Then she transfers each child's pocket money onto their card and checks with each of them as to their requirements for the day. They're all going to buy their lunches at school. Lola has to pay for a class trip to the zoo, and she wants to go to the virt-real theatre after school with her friend. Craig's six monthly bus fare is due and Karla wants some of her savings from her bank account so she can buy some of the new 'Nickbok' spacewalk joggers that everyone who's cool is wearing. Karla can't wait until her 18th birthday next week when she will be legally entitled to her own Barta-card, not a family linked one, and her own homestation so that she can have total autonomy over her own bank account and her earnings from her after school job and her babysitting. As the children leave, taking their cards with them, Petra plugs her own card into the machine; checks that the wages from her husband Dan's job at the robotics design laboratory have been paid into the bank; pays some of their outstanding bills, and in her usual generous fashion clicks onto an on-line charity channel so she can decide which charity to donate to this week. She orders the week's groceries from the on-line supermarket, paying for them on the spot and sending a message through Dan's pager to remind him to collect them on the way home.

Petra settles down in her home office, downloads a few brochures so they can spend their evening planning their holiday trip to India, then starts her new series of on-line articles for 'Money Today' looking at the changes which have been wrought to family life by the introduction of the cashless society. 'A year ago,' she writes, 'we all had a few coins in our pockets for those little purchases and a wallet full of banknotes and plastic cards. So many things have changed in our lives since the introduction of the truly cashless society.' She sits back with a sigh. 'No matter what,' she thinks, 'money still goes no further than it ever did.'

You are members of an international research team who are observing the introduction of Bartacard technology. Brainstorm the problems and challenges presented by the introduction and use of Barta-cards, identify a major underlying problem and use your FPS skills to come up with a plan of action to overcome this.