Recency, Frequency, Intensity

The Italian economist Vilfredo Pareto (1848-1923) described an unequal distribution of wealth in 1906, observing that 80% of the land in Italy was owned by 20% of the population.

Pareto's observation appears to possess a timeless quality. Figures from the United Nations Development Program Report (1992), show an uneven distribution of global income. The richest 20% of the world's population controlling 82.7% of the world's income.

Distribution of global GDP (1992)

Population Quintile	*Income*
Richest 20%	82.70%
Second 20%	11.75%
Third 20%	2.30%
Fourth 20%	1.85%
Poorest 20%	1.40%

"Pareto's Principal" (which basically states that 80% of the effect derives from 20% of the cause) is more than just an interesting economic phenomenon. It has been widely applied within marketing to identify worthwhile customers, by acknowledging three fundamental truths:-

1. Customers purchasing from an organisation recently are more likely to purchase again than less recent customers.
2. Customers purchasing frequently are more likely to purchase again than infrequent customers.
3. Customers spending more money are more likely to purchase again than customers spending less.

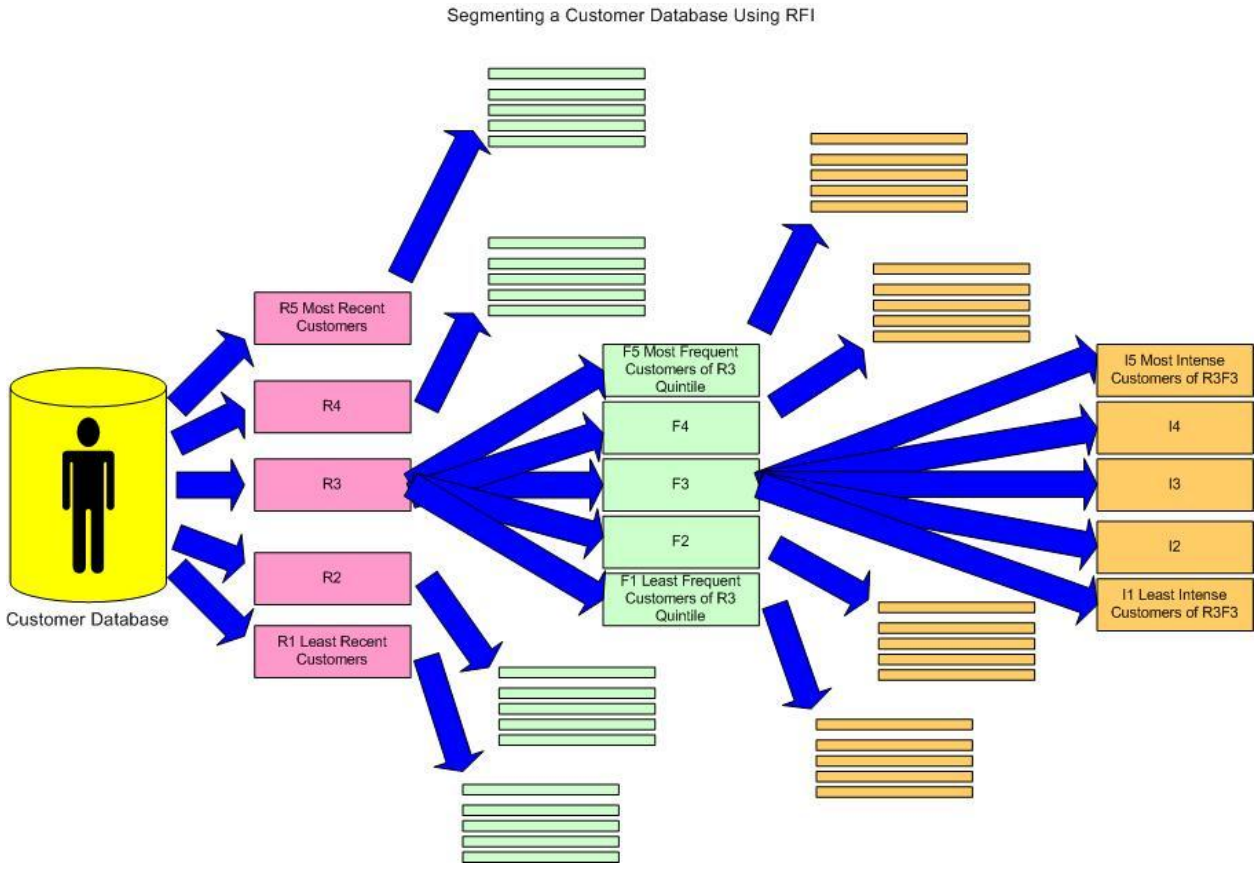
The order of these attributes is important. Recency is most relevant, followed by frequency which is less so, followed by intensity which is the least significant of the three.

RFI analysis is implemented by listing customers in order of date of last purchase. The result is divided into 5 equal segments, and each labelled - with 5 being the quintile containing the most recent customers, through to 1 the least recent.

The contents of each quintile is then sorted according to number of purchases made, and split into 5. With a rating of 5 given to the most frequent purchases through to 1 the least frequent.

Each of the resulting 25 segments is then ordered according to sum value of purchases, again each segment is split into a further 5 segments, and then rated. With 5 being the highest value segment through to 1 the lowest.

This process yields 125 cells, each containing the same number of customers, and each classified with a 3 digit number. This number is the RFI code of all customers within the cell, and allows quantitative evaluation of customer worth.



This process is repeated monthly to account for the most recent customer activity.

Shajahan (2004) describes this as a "snapshot", measuring the customer at a single point. He highlights that newer methods track RFI parameters over time, facilitating understanding of customer behaviour.

Indeed, Kimball (2002) advocates assigning descriptions to the common groups of behaviours. Then from this developing a time series of customer behaviour by storing this as a dimension with a 24 month time series of behaviour tags across 24 attributes.

Using Kimball's technique it is possible to distil the essence of vast quantities of customer activity. This is useful for data-mining purposes e.g. predicting customer behaviour in the future.

"..the traditional model of segmentation was very much just dividing up in a pie chart method, which customers - and how customers were scored and measured".

"What we wanted to do was move to a more dynamic onion skin approach whereby we looked at different variables to be able to classify customers to see where they would potentially move in the future and develop. So rather than just using historical data to say 'this customer is this type', what we wanted to do was create a landscape in the future to be able to see where we could move our customers to and what was driving those moves". (Belchamber, 2010).

The greatest advantage of RFI analysis is its simplicity. In its basic form it can be applied by someone with no knowledge of statistics, and without the need for expensive software.

In fact for a small enterprise with a modest customer base, perfectly acceptable RFI analysis is achievable solely within Microsoft Excel.

The effectiveness of RFI analysis has been proven time and again. By implementing RFI analysis, an organisation that has previously treated all customers alike, will see dramatic results by simply targeting those customers identified within the higher value RFI cells.

Additionally, because of its simplicity, the results of RFI analysis are readily understood by business people.

However with its ease of implementation, it can become overused. The "best" customers within the RFI matrix may be over-solicited and become annoyed or tired of the organisation.

Hughes (2010) describes this as "file fatigue" – a term which harks back to the early days of marketing before the widespread use of computers. At this time, RFI analysis was performed by recording customer details on card files, and storing these files within boxes corresponding to the RFI ranking of the customers.

Hughes counsels against neglecting customers with low RFI cell rankings. Suggesting instead that with the right attention customers may be persuaded to move up to a more profitable cell and become better customers.

Critics of RFI assert that the model simplistically assumes customers will continue to behave in the same manner perpetually and does not take into account the impact of life cycle transitions e.g. a change to marital status, career advancement or the arrival of children.

Within marketing, RFI is sometimes referred to as RFM (Recency, Frequency, Monetary).

A modified form of RFI is also used within the area of consumer viewing to track time spent by a customer on a specific visual resource. This is known as RFD (Recency, Frequency, Duration).

However the principles of RFI are not limited to tracking and predicting customer behaviour, having been successfully applied to many other areas including quality control.

In the US in the 1930s and 1940s the quality management pioneer, Dr. Joseph Juran, recognised that 20 percent of defects caused 80 percent of problems. Juran coined the term "the vital few and trivial many" to describe this (Juran, 1951).

Microsoft's CEO Steve Balmer in a memo (quoted by Rooney, 2002) to staff wrote-

"...One really exciting thing we learned is how, among all these software bugs involved in the report, a relatively small proportion causes most of the errors. About 20 percent of the bugs causes 80 percent of all errors, and--this is stunning to me--1 percent of bugs caused half of all errors."

As an example, a consumer electrical retail business interested in the amount of revenue lost due to product quality issues might use RFI analysis to better identify "the vital few".

Firstly by listing all defective products returned by customers, sorting them according to return date in descending order, and then segmenting this list into quintiles.

Secondly ordering the contents of each quintile by total number of returns grouped by specific product, and segmenting each of these.

Thirdly ordering the contents of each of these 25 segments according to the sum value of returns grouped by individual product.

The quality issues of products contained within cell 555 would therefore be the most worthwhile place to start investigating as these would be causing the greatest impact to the immediate revenue of the business.

The issues of products contained within cell 111 would likely be less worthwhile for further investigation.

Finally, in considering the diversity of areas requiring the targeting of effort for maximum effect (such as marketing, time-management, quality control, software bug-tracking etc.). The author concludes that considerable benefits have been gained from the socio-economic observations of an Italian economist over a century ago.

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