<u>One To One Interactive</u>

Knowledge Widget Decision Logic
Initial Product Recommendation Logic
Aegon/TransAmerica

Forming the "Initial Product Recommendation"

The Initial Product Recommendation (or "pre-tick logic") is a function of 6 elements:

1. Demographic Data Entry
2. Lifestage Assignment Logic
3. Product-level Age Logic and Exclusion Logic
4. Product-level State Logic
5. Lifestage Pre-tick Logic
6. Initial Product Recommendation Logic

Initial Product Recommendation

7. Lifestyle Data Entry
8. Lifestyle Pre-tick Logic
9. Question Assignment Logic
10. Question Data Entry
11. Question Tick Logic (w/ Auto-Recommend)

Lifestyle and Question-based Recommendation (not discussed in this document)

Demographic Data Entry

This is the first step for the consumer. These questions will ultimately serve 5 functions:

1. Used in Lifestage Assignment Logic
2. Used for Avatar/Widget graphics (not discussed in this document)
3. Used for Product-level exclusions
4. Used for Question Assigment Logic (not discussed in this document)
5. Used for Marketing Messages (not discussed in this document)

Sample demographic entry form (Excel-based)

Step 1
Select appropriate value from drop down

	Demographics	
1	Age	33
2	Gender	M
3	Own Home	Y
4	Car	Y
5	State	MD
6	Marital	Y
7	Children	Y
8	Age of Youngest Child	Young
9	Children at Home	Y

(see Widget Logic.xls "Control" tab for sample lists of valid data values)

Future campaigns may incorporate additional demographic fields.

It is important to note that the "Age of Youngest Child" need not be determined by simply asking "What is the age of your youngest child?" For example, we may wish to have the user describe his entire family. For back-end logic purposes, however, we will use the "Age of the Youngest Child" in our decision tree.

Similarly, we may wish to gather information about Home Ownership, Presence of Car or even State of Residence through a more interactive fashion than simply asking this information directly of the user. Again, the Excel entry form is simply meant to represent a sample entry form.
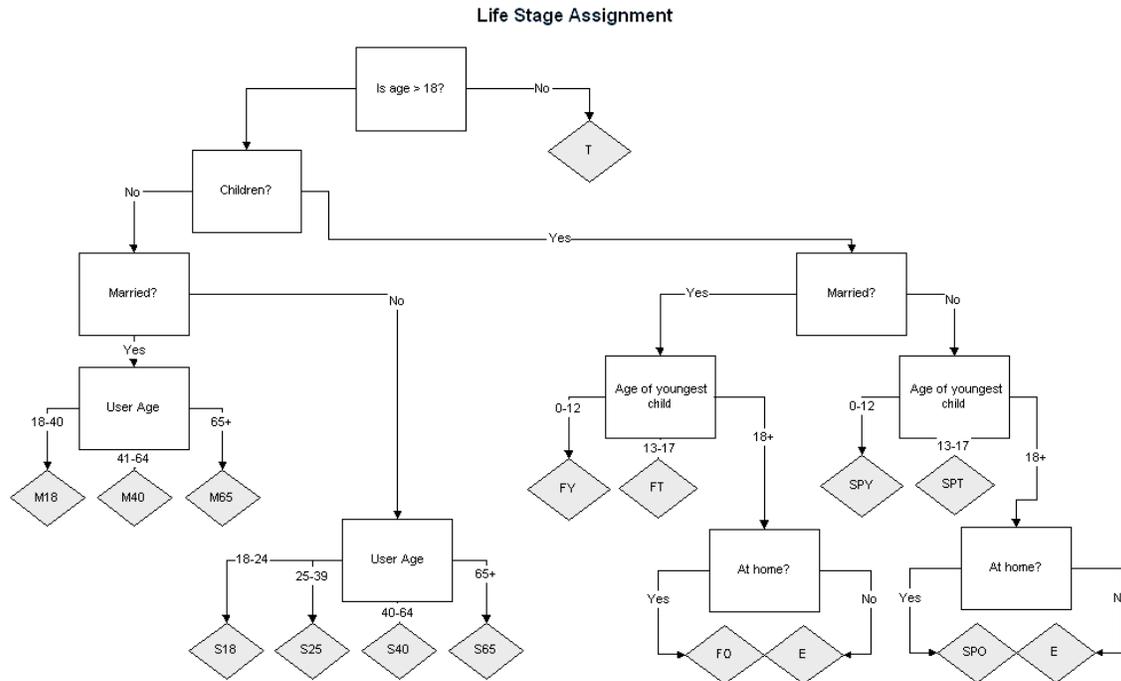
We are assuming, for now, that these fields are REQUIRED data fields, although we have built the subsequent logic to fit with OPTIONAL data fields. This is accomplished through a list of DEFAULT VALUES which set an initial condition for the demographics. Alternatively, we are considering the development of a default lifestage (see next section) which would accomplish this in a similar fashion.

Sample Default Values from Widget Logic.xls "Control" tab

	Defaults
Age	55
Gender	F
Own Home	N
Car	N
State	IL
Marital	N
Children	N
Age of Children	Older
Children at Home	Y

Lifestage Assignment Logic

We have pre-defined 15 lifestages which have a one-to-one mapping from the demographic data collected. Below is the Life Stage Assignment logic tree.

Life Stage Assignment

(see Widget Logic.xls "Lifestages" tab for excel-based logic coding)

The lifestages are as follows:

Lifestage Identification		
	Teen – Under 18 – Has prepaid card through parent (we need to flush these out more)	T
	Younger Single – 18 – 25: Teen/college age	S18
	Single – 25-40: marital status is single with no presence of children	S25
	Single – 40-65: marital status is single with no presence of children	S40
	Single - 65+: marital status is single with no presence of children	S65
	Married (no kids) – under 40: marital status is married with no presence of children	M18
	Married (no kids) – over 40: marital status is married with no presence of children	M40
	Married (no kids) – over 65: marital status is married with no presence of children	M65
	Single parent – young kids: marital status does not equal married with presence of younger children (under 13)	SPY
	Single parent w/teens: marital status does not equal married with presence of older children (13-17)	SPT
	Single parent – older children: marital status does not equal married with presence of older children (18+)	SPO
	Young family: marital status is married with presence of young children (under 13)	FY
	Family w/ teens: presence of older children (13-17) (Married)	FT
	Family w/ older children: presence of children 18+ at home	FO
	Empty nester: presence of children outside home	E

Product-level Age Logic and Exclusion Logic

Demographic data entered by the user is also used to determine which products the consumer is NOT eligible for. Age is the most commonly used attribute, although any attribute may be used. State of residence is addressed in the next section.

Sample exclusion criteria:

- ADD – Exclude if age of user <18 or >=65
- Term Life – Exclude if age of user <18 or >=60
- LTC – Exclude if age of user <18 or >=65
- AHIP – Exclude if age of user <18 or >=64
- Health Advantage – Exclude if age of user <18 or >=64
- Dental – Exclude if age of user <18 or >=100
- Sr. AD – Exclude if age of user <65 or >=85
- Home Warranty – Exclude if user does NOT own a home
- Homeowners – Exclude if user does NOT own a home
- Auto – Exclude if user does NOT own a car
- Payment Pro
- Wallet Pro
- Credit Score
- ID Theft Pro

Product-level State Logic

State of residence data entered by the user is used to either assign "pre-ticks" to a given product or to determine which products the consumer is NOT eligible for.

For some products, we wish to provide 2 pre-ticks for residents of a set of particular states, 1 pre-tick for residents of another set of states and 0 pre-ticks for the remainder of the states.

Further, for some products we wish to exclude a product from consideration based on the user's residence within a particular state.

For a sample of the Product-level State Logic, see Widget Logic.xls "Control" tab columns P through AD.

Lifestage Pre-tick Logic

Once a user's lifestage is assigned, we wish to assign a number of "pre-ticks" for several of the products. For example, if a user is assigned to the Single Parent with Young Children lifestage (SPY), we may assign the following the following ticks:

Sample Lifestage Pre-tick Logic

	SPY
ADD	1
Term Life	1
LTC	0
AHIP	0
Health Advantage	1
Dental	1
Sr. AD	0
Home Warranty	1
Homeowners	0
Auto	0
Payment Pro	1
Wallet Pro	0
Credit Score	1
ID Theft Pro	0

(For a more complete sample, see Widget Logic.xls "Logic" tab rows 21 through 35)

Initial Product Recommendation Logic

Once the user has entered Demographic Data, the Lifestage has been assigned, Product-level Age and Exclusion Logic has been assigned, Product-level State Logic has been assigned and Lifestage Pre-tick Logic has been assigned, these elements are combined to create an Initial Product Recommendation, or product ranking for the consumer.

In theory, the knowledge widget could make a semi-intelligent product recommendation once this logic has been performed and prior to the customer answering specific questions for a more customized recommendation.

For a sample of the Initial Product Recommendation Logic, see the Widget Logic.xls "Logic" tab Summary Table in rows 2 through 16. The Initial Product Recommendation Logic is represented within that table when the answers to the questions within the workbook are all null.