



ILSA Green Belt for Growth: Assisted Living Requirements

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Assisted Living 2002 Six Sigma Presentation, Dec. 2001

Purpose

- To define ILSA feature set for assisted living developers
 - first potential customers
 - possible alpha test sites
 - mix of living environments means varying needs and technology opportunities



Charter

Six Sigma/Growth Green Belt Project Charter Independent LifeStyle Assistant Version 2002

Growth Program	ILSA Version 2002 (first productization)	Project Impact (projected \$ value)	\$250k
Team Leader	Beth Young	Telephone Number	954-5919
MBB/BB Mentor	Ted Cochran or Kathie Radke	Marketing Champion	Tom Rosback
Technology Champion	Bob Aasen	Finance Champion	Paula Buchner
Start Date	9-3-01	Target Completion Date	12-10-01

Element	Description	Charter
Choose the Value (Business Need, Project Objectives)		
Project Description	What process or product offering is to be improved or developed?	<i>Independent Life Style Assistant first version product to be launched in 2002</i>
Target Customer(s)	Who are the customer(s) that will benefit from this project (may also include internal customer)?	<i>Assisted Living Facility Developer and Managers, Health Care Providers, Eldercare Service Provider Companies (Evercare)</i>
Customer Need – Problem Statement	What key problem do they need solved?	<i>Provide consistent, high quality and cost effective care for elder clients who wish to maintain independence</i>
Competitive Alternatives	What are alternative or competitive solutions that need to be considered?	<i>ADT, Lifeline, Pioneer Medical Systems, Medic Aide Response Systems, Response USA</i>
Value Proposition (external)	How will the customer benefit from using our offering?	<i>Improved consistency and quality of care at lower costs.</i>
Project Justification (internal)	What are the project's expected financial and/or non-financial returns and when?	<i>Version one product targeted at new development high density planned housing for elders – 100 –300 units in year 2002.</i>
Provide the Value (Team, Budget, Schedule)		
Team Members	Who are the full-time members and any expert consultants?	<i>Elisabeth Young Vic Riley Larry Stickler Steve Huseh</i>
Budget	What resources are available to the team?	<i>NIST Independent Lifestyle Assistant Program H&BC marketing resources</i>
Empowerment	What decisions are the team empowered to make?	<i>Define product based on customer feedback Develop product, value proposition, and marketing approach</i>
Schedule	Project start	<i>Sept 3, 2001</i>
	Define completion	<i>Sept 10</i>
	Measure completion	<i>Oct 12</i>
	Analyze completion	<i>Nov 2</i>
	Improve/Innovate completion	<i>Nov 16</i>
	Control completion	<i>Dec 3</i>
Project completion		<i>Dec 10</i>
Communicate and Capture the Value (Project Deliverables)		
Project Closure	What are the key deliverables from the project?	<i>Validate features and functions, hardware, and services for possible version one product to be marketed through EverCare and to develop market segment of assisted living. Determine go forward plan – product launch vs. continued data gathering.</i>



Define

- Charter
- Thought process map: what tools are most appropriate for our needs?
- Strategic FMEA: how could we fail to meet customer needs?
- Baseline value proposition



Measure

- Survey of customer needs and value ratings for features
- Selected four assisted living developers who had expressed interest in a relationship with us
- Written market survey from two, both of which may be alpha site hosts
- Site visits and interviews at three facilities
- Further discussions with one (Presbyterian Homes)



Analyze

- How to treat the data with only two respondents?
 - How similar are the respondents? (Mann-Whitney rank sum analysis)
 - How valuable does each feature seem to be overall? (median and average ratings for all environments, all except memory care, and assisted living only)
 - What special concerns do they have? (anecdotal data and volunteered responses)
 - Validity check: QFD, correlation analysis



Innovate

- Final feature set:

- 24/7 maintenance services be for system failures
- client check-in button be
- alert a caregiver to specified client events via pager
- path lighting
- wearable fall detection sensor be
- measures of medication compliance be
- location tracking
- remind clients to take medication
- caregiver access to client status via a two-way pager
- log reports of client activities and events
- log of caregiver response times to calls and time with the client
- integrate all the various technologies servicing an individual client
- monitoring sleeping
- overall measurements of client's activity level be
- remind clients to go to the bathroom
- remind people to eat meals
- central station console
- remote internet access by the family to client status and logs
- outside service that provides 24/7 monitoring of your client data
- Configuration service with Evercare



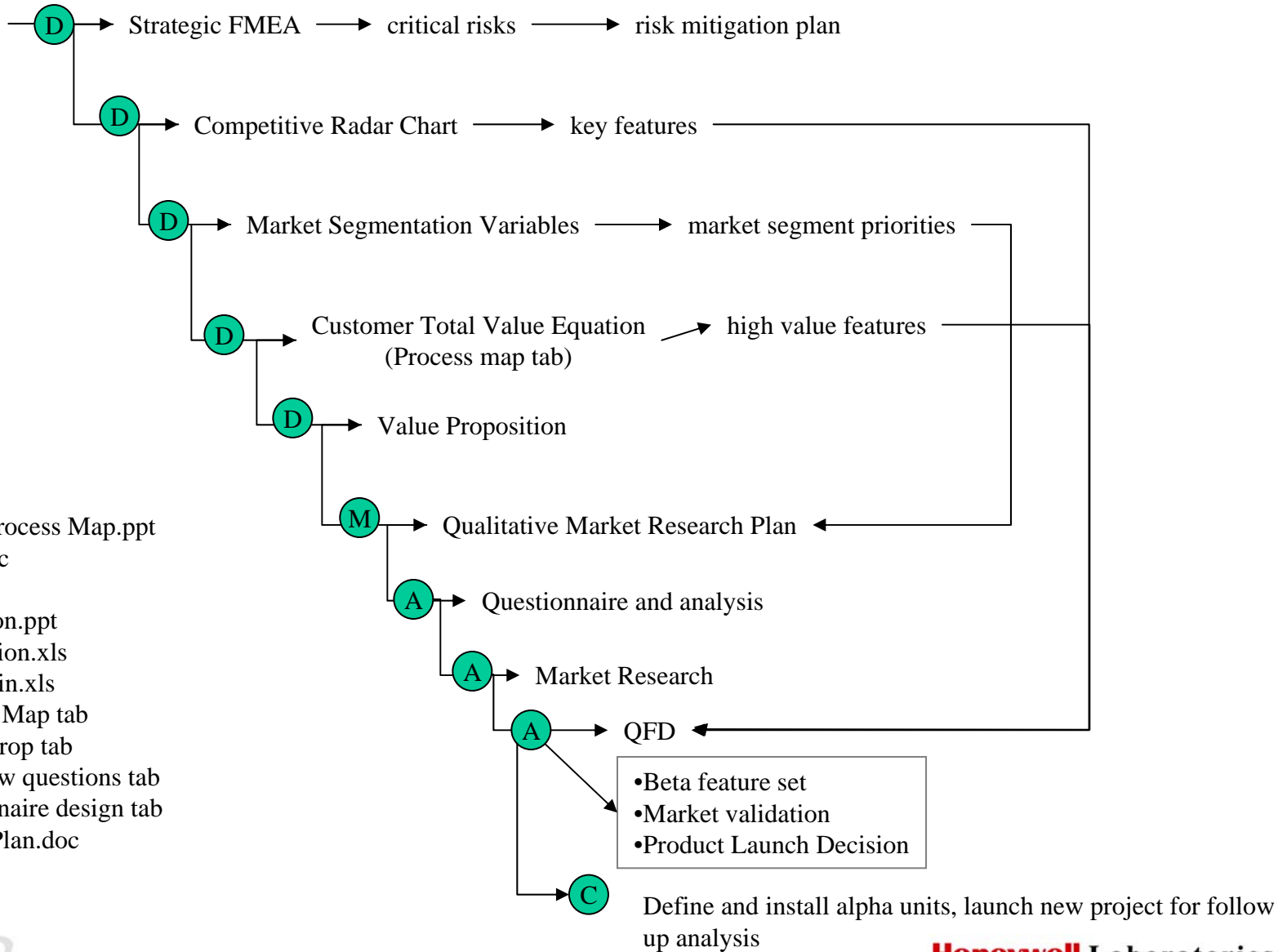
Control

- Installation of alpha test units in June 2002
- Formal usability testing
- Greenbelt survey of customer feature ratings after experience with them - longitudinal analysis (rank-sum)



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Thought Process



Files

- Thought Process Map.ppt
- Charter.doc
- FMEA.xls
- Competition.ppt
- Segmentation.xls
- Value Chain.xls
 - Process Map tab
 - Value Prop tab
 - Interview questions tab
 - Questionnaire design tab
- Research Plan.doc
- QFD.xls



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Strategic FMEA

Strategic Failure Modes and Effects Analysis (FMEA)

Date:	1/5/19
Project Name:	ILSA
Responsible:	Karen (Merge of Riley's, Karen's & Dave's)

Risk Category	Potential Failure Mode	Potential Failure Effects	SEV	Potential Causes	OCC	Controls	DET	RPN	Time Frame	Triggers	Reactions
What are the risk categories, e.g. competition, technology, legal, resources, etc.?	What ways could the program, product, or process not proceed as planned?	What would be the impact of failure mode on program performance or meeting customer requirements?	How severe is the effect to the program?	What program, product, or process weakness could cause the failure mode to occur?	What is the likelihood that the cause will occur?	What methods, tools, or measures will discover the cause before it occurs?	How difficult is it to detect the cause of Failure Mode?	Risk Priority Number (SEV X OCC X DET)	Is this likely to occur in the short, mid, or long term?	What measure of the potential cause will trigger your contingency plan?	What contingency plan will you initiate to eliminate or minimize the impact of the failure mode?
customer	Proposed functions add insufficient value for customer	lower sales	7	lack of customer input	2	market research	3	42	mid	survey results indicate minimal product interest	review feature set
customer	Proposed functions add insufficient value to customer	lower sales	7	insufficient validation and testing	6	testing with potential customers	5	210	mid	results from customer surveys indicate limited product interest	review feature set for high value features
customers	System complexity	system not used to fullest advantage, missed events	7	functional complexity, low budget, poor usability design	4	requirements, field tests	4	112	mid	Usability studies, project reviews, user testing	Simplify Uis, ??increase autonomy
customers	difficult to install and configure	expensive to set up, misconfigured systems fail	5	too much customization required for each installation	5	System design reviews	4	100	mid	Usability studies	Simplify designs, Uis
customers	proliferation of sensors	client resistance	6	sensors too visible, obtrusive	4	field tests	2	48	mid	Usability studies	Find less obtrusive sensors
cost	Cost of hardware and services too high	lower sales	5	Lack of understanding of value to customer,	2	market research	2	20	short	projected cost over \$4000	maintain list of low and high cost alternatives
cost	Cost of hardware and services too high	lower sales	5	cost creep during design	4	good cost analysis, tight specs, focus on cost, clear vision of end product	5	100	med	projected cost over \$4000	maintain list of low and high cost alternatives
org commitment	Insufficient investment to develop product	suboptimal product, no product	9	Lack of validated opportunity, outside of core business, s strategy	9	AOP, STRAP reviews	4	324	short	division withdraws marketing and product development support	Delay project, resize project
Competition	Inferior solution	Customers not satisfied	5	Competing system moves fast	5	Work with standards, watch field, be nimble	5	125	long	Competitors look like they're going to market	Partial offerings
distribution	no distribution channels appropriate for ILSA products	need to develop new distribution channels, partnerships	3	no appropriate channels in place	2	H&BC identify potential channels early	1	6	mid	Can't find good channels	Build them with GE
legal	IP impingement	limit functionality	3	critical concept already patented	2	do IP search	2	12	mid	none - implement contingency plan proactively	Track IP, work with IP holders to find agreements
legal	liability - system fails to alert condition when needed	decide not to offer; cripple functionality; added complexity	5	litigious society	3	partner may be more familiar with these issues; position in the market to make limited role clear; introduce into	2	30	long	none - implement contingency plan proactively	follow lead of alarm companies - fire, security, etc.; observe careful marketing rules to limit implied responsibility
Technical Approach	Conflicting Requirements / Vision	Nothing built	3	Large team, poor leadership, low communication	8	PM tools		24	short	not meeting deadlines, revisiting same issues	good documentation & descriptions
Technical Approach	promising to be everything for everyone	fail to meet expectations	5	need to sell program; open architecture concept implies large range of functionality; lack of focus	4	rigorous functional analysis; rigorous PRS adherence process	4	80	short	inability to meet technical requirements	define scope, but compelling functionality
Technical Approach	Not done in time	Delay demo	5	Missed parts of design, found hurdles late	7	Early full-path narrow test, PM tools	5	175	short	Assisted Living 2002 Six Sigma Presentation, Dec. 2001 missed milestones	test for functionality for demos

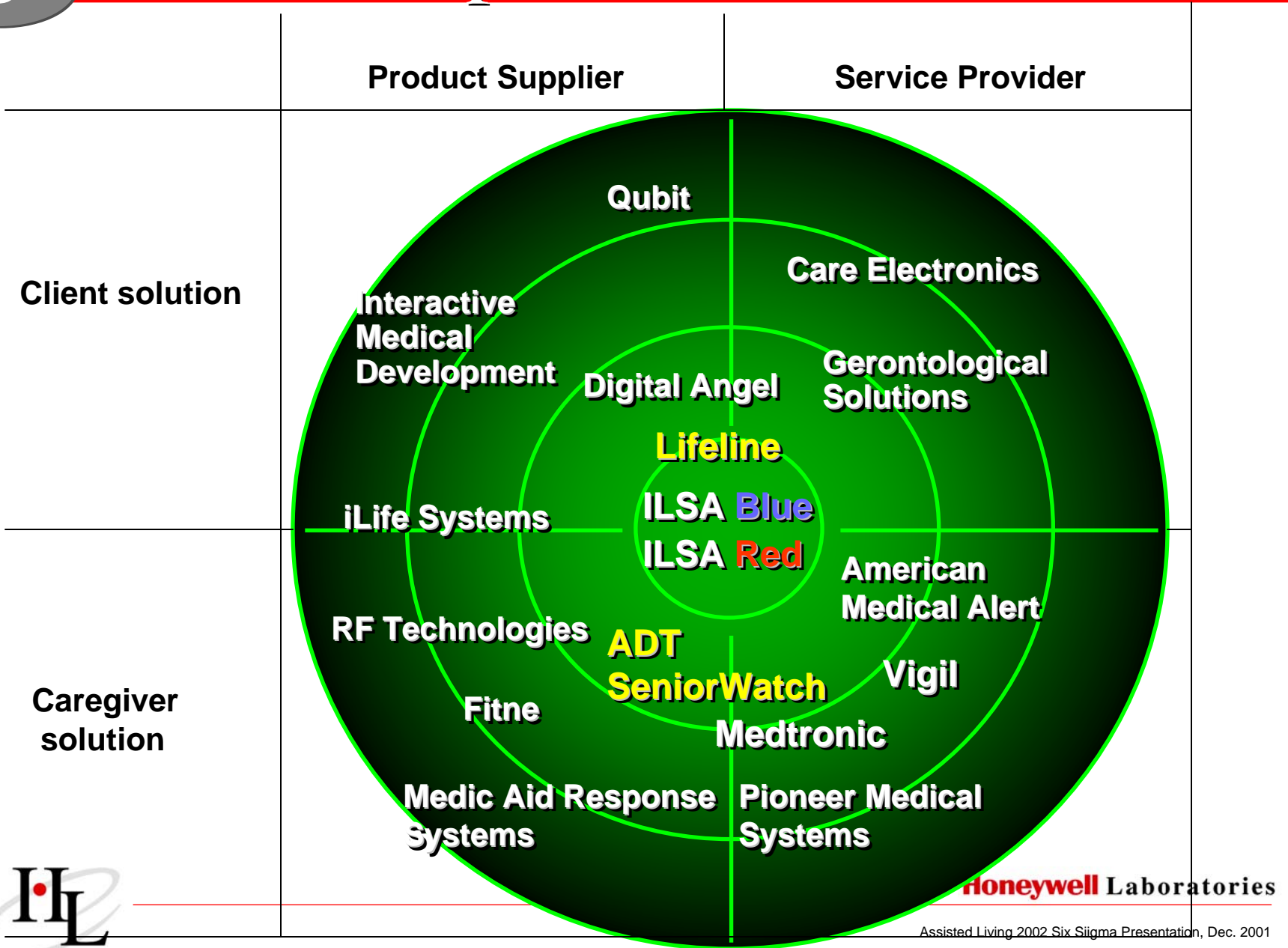


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Competitive Radar



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Market Segmentation

	time to rev	lack of competition	replicable/ extendible	strong value proposition	entry & infrastruc.	
Facility Caregiver						
Local ALF	9	3	5	6	8	31
Regional ALF	6	4	6	6	6	28
Nationwide ALF	4	5	7	6	4	26
Home Caregiver						
Local Nurse Network	3	2	6	7	7	25
Regional Nurse Network	5	3	7	7	5	27
Nationwide nurse network	7	4	8	7	3	29
Client						
Independent	3	3	4	3	3	16
Communal independent	4	4	4	3	4	19
Semi Dependent	2	5	4	3	5	19
Dependent	1	6	3	3	6	19
Family Caregiver						
In-Home	3	1	3	4	2	13
Remote	3	1	4	4	4	16
Distant Remote	3	1	4	4	6	18
Insurance Co.	1	1	5	3	2	12
assumption - what to get to market in 2002 by July 1						
sub assumption - no new hardware development dollars						



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Market Segments within Senior Housing

Assisted Living Environments

Independent Living Environments

Customer Selection

Facility owners and managers for Assisted Living and Memory Care Clients

Independent seniors and their families

Value Proposition

1. Improved productivity
2. Competitive differentiation
3. Improved service/care

1. Improved lifestyle
2. Peace of mind
3. Low medical costs

Value Capture

1. Installation charge
2. Hardware margin
3. Reoccurring service fee

1. Hardware margin
2. Reoccurring service fee

Profit Zones

1. Program packaging
2. Hardware design
3. Software applications

1. Hardware design (plug and play)
2. Software applications

Strategic Control

1. Application expertise
2. Integration/installation
3. Brand

1. Application expertise
2. Brand
3. Monitoring/services



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Value Chain

Value Chain Name: <i>ILSA 2002 System</i>					
Suppliers: <i>Ademco</i> <i>other hardware suppliers</i>		Honeywell <i>Labs</i> <i>CEHS</i>	Direct Customer <i>Evercare (VAR)</i>	Customer <i>Dealer/contractor</i>	Customer <i>Senior Housing Owner</i> <i>Senior Housing Manager</i>
Input: <i>hardware</i>	Requirements: <i>cost effective</i> <i>reliable</i>	Key Activities: <i>develop software</i> <i>test, release product</i> <i>market product*</i> <i>software license</i> <i>license server</i> <i>license remote access</i> <i>monitoring fee collection*</i> <i>warranty</i> <i>maintenance upgrade fee collect</i> <i>dealer development</i> <i>sell hardware to dealer</i> <i>software technical support</i>	Key Activities: <i>Client assessment</i> <i>Care plan recommendation*</i> <i>technology recommendation</i> <i>technology configuration</i> <i>train the trainer</i> <i>Care coordination</i> <i>market product</i> <i>define product requirements</i> <i>pre sale building assessment</i> <i>configuration maintenance</i>	Key Activities: <i>sales*</i> <i>installation</i> <i>credit/collection</i> <i>system maintenance</i> <i>determine project hardware</i> <i>quote projecc installations</i> <i>charge maintenance fee</i>	Key Activities: <i>train staff</i> <i>educate clients</i> <i>educate family</i> <i>use system</i> <i>identify problems</i> <i>call for support</i> <i>coordinate caregivers</i> <i>purchase decision</i> <i>pay for hardware, install</i> <i>pay for services</i> <i>pay for ongoing maint</i>
	Key Financials (Price, Margin, etc.)	<i>gross margin 20-30%</i>	<i>selling?</i>		
	High Priority Needs or Benefits	<i>revenue</i> <i>recurring revenue</i> <i>profit</i> <i>gain market knowledge</i> <i>improve product</i> <i>complimentary to core tech</i>	<i>Increase revenue</i> <i>major elder care supplier</i> <i>expand service offering</i> <i>compliment existing services</i> <i>growth</i> <i>profit</i> <i>recurring revenue</i>	<i>Up front revenue</i> <i>compliment core business</i> <i>growth</i> <i>maintenance revenue</i>	<i>high occupancy rate</i> <i>mitigate conflicts</i> <i>reduce training cost</i> <i>reduce direct labor</i> <i>reduce turnover</i> <i>consistent care</i> <i>state of the art</i>
		Other Supplier <i>Central server</i>	Other Supplier <i>technical support</i>	Other Supplier <i>monitoring center</i>	Other Supplier <i>distributor</i> <i>(optional)</i>
		Key Activities: <i>provide remote access</i> <i>run s system ofware programs</i> <i>send messasges, alerts</i>	Key Activities: <i>trouble-shoot sechnical issues</i> <i>ALF customer service</i>	Key Activities: <i>monitor system</i> <i>respond to alerts</i>	Key Activities: <i>local inventory</i> <i>credit/collection</i>

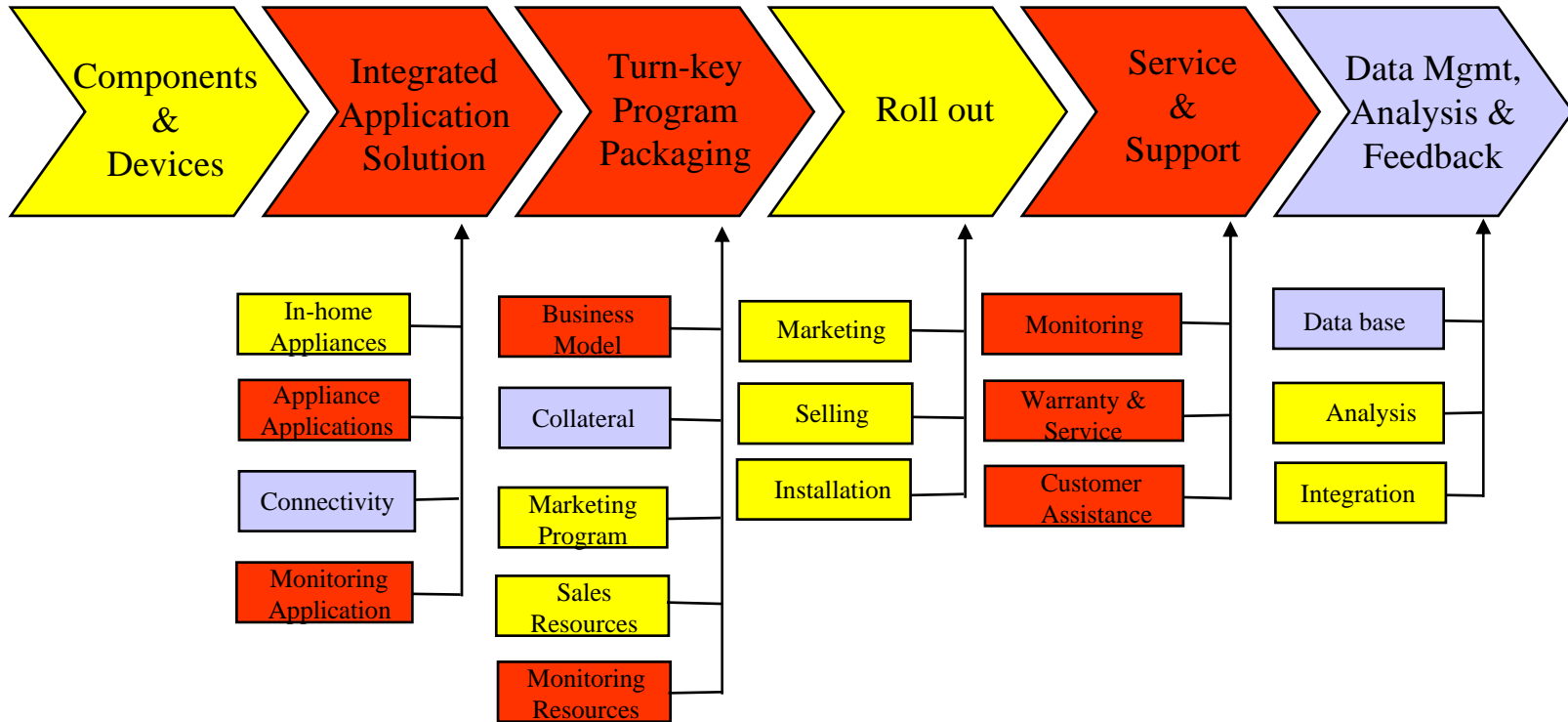


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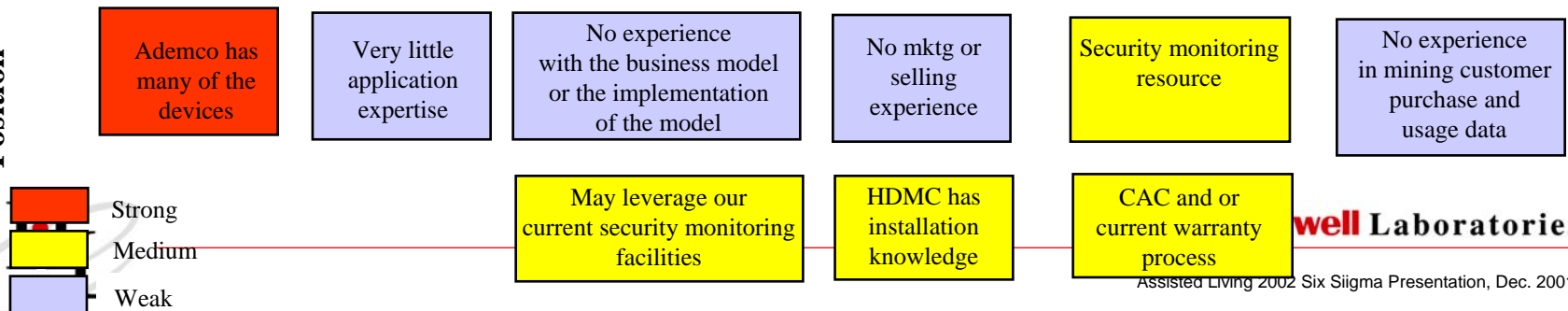
Value Chain Analysis

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- Strong value-add component
- Medium value-add component
- Limited value-add component



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Value Proposition

Value Offering: *ILSA 2002 System*

element	description	difference from competitor	value	impact on customer
		ADT	<i>evercare</i>	<i>ALF</i>
product	caregiver tool for elder care			customer activity
	<i>activity monitoring</i>	<i>comp. No reminders</i>		<i>better care</i>
	<i>safety monitoring</i>	<i>comp no todo</i>		<i>assess quality of caregivers</i>
	<i>task reminders</i>	<i>comp no family reports</i>		<i>quicker response</i>
	<i>emergency alerts, routine alerts</i>	<i>comp uses active badging</i>		<i>early intervention</i>
	<i>task coordination</i>	<i>Comp has medical record elect.</i>		
	<i>caregiver reports</i>			
	<i>family reports</i>			
	<i>functional assessment?</i>		<i>save money in nursing case mgt</i>	
economic equation				customer value
	<i>hardware cost</i>	<i>potential lower hardware cost</i>	<i>expand market</i>	<i>reduce turnover issues</i>
	<i>software cost</i>	<i>unknown monitoring cost</i>	<i>expand evercare services</i>	<i>reduces cost</i>
	<i>installation</i>		<i>reduce cost ALF</i>	<i>consistent quality care</i>
	<i>services</i>		<i>differentiates ALF service</i>	<i>increase occupancy rate</i>
	<i>training</i>			<i>improved client service levels</i>
	<i>configuration</i>			
	<i>maintenance</i>			
	<i>increase occupancy rate</i>			
	<i>reduce direct labor</i>			
	<i>reduce training cost</i>			
	<i>improve quality</i>			
distribution				customer satisfiers/frustrations
	<i>evercare (VAR)</i>	<i>unknown</i>		<i>angry families - clients</i>
	<i>dealers</i>			<i>poor help</i>
	<i>developers</i>			<i>high turnover</i>
	<i>ALF owner/manager</i>			<i>needy client</i>
				<i>no empty rooms</i>
				<i>waiting list</i>



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Value Proposition

Honeywell ILSA technology will:

- enable elders to enjoy the highest level of independence in their living environment,
- improve quality of care provided,
- reduce the cost of care-giving,
- provide increased peace of mind for elder's loved ones.



Qualitative Research Plan

ILSA02 GB Market Research Plan – 9/20/01

Business Objective (What is to be decided or what is to be learned?)

Help Assisted Living Facilities and Senior Housing Facilities differentiate their business and provide consistent, high quality and cost effective care for elder clients.

Potential Offering(s) (Specify to the degree that measurement is implied or specified)

Caregiver tool, hardware, software and services for elder care

Research Objective: (What do you want to know about your candidate solutions?)

Determine key issues in elder care. Determine interest in technology solution, value of key features, perception of permissible prices.

What information is needed?

(What are the key measures? What relationships are you looking for with the measures?)

- Key issues in senior housing management
- How do senior housing developers market their facilities
- Typical senior housing setting to determine hardware & service needs
- Key issues in assisted living and independent living caregiving
- Expected benefits and savings (value) of technology solution, willingness to deploy tech solution, interest in specific identified features (ILSA 2002 and others)
- What is Evercare value chain and product expectations

Whom would you like to talk to?

Capable?

Willing?

Accurate?

Local senior housing managers



Developer of senior housing



Evercare – Nellie Johnson , Nancy Williams, Bob Speer



Data Collection Plan Who will collect the data? Focus Group or one-on-one interviews? Define all elements which could create variation (e.g. What is the population?; Sampling Methods; Procedures; Experience and Training of Data Collectors cost and timing.)

One on one for all aspects – interview key senior housing and assisted living prospects identified by Evercare



Rating Form - Customer Needs

How important are the following to your business?

In this section, we will ask about how important various aspects of **client satisfaction**, **quality of care**, **operating costs**, **revenues**, and **clients' family satisfaction** are to the success of your business.

Client Satisfaction:

1. Timely response to client calls:

				X
not important	somewhat important	important	very important	critically important

Improve Care:

2. Being able to anticipate problems before they occur:

			X	
not important	somewhat important	important	very important	critically important



Categories of customer needs

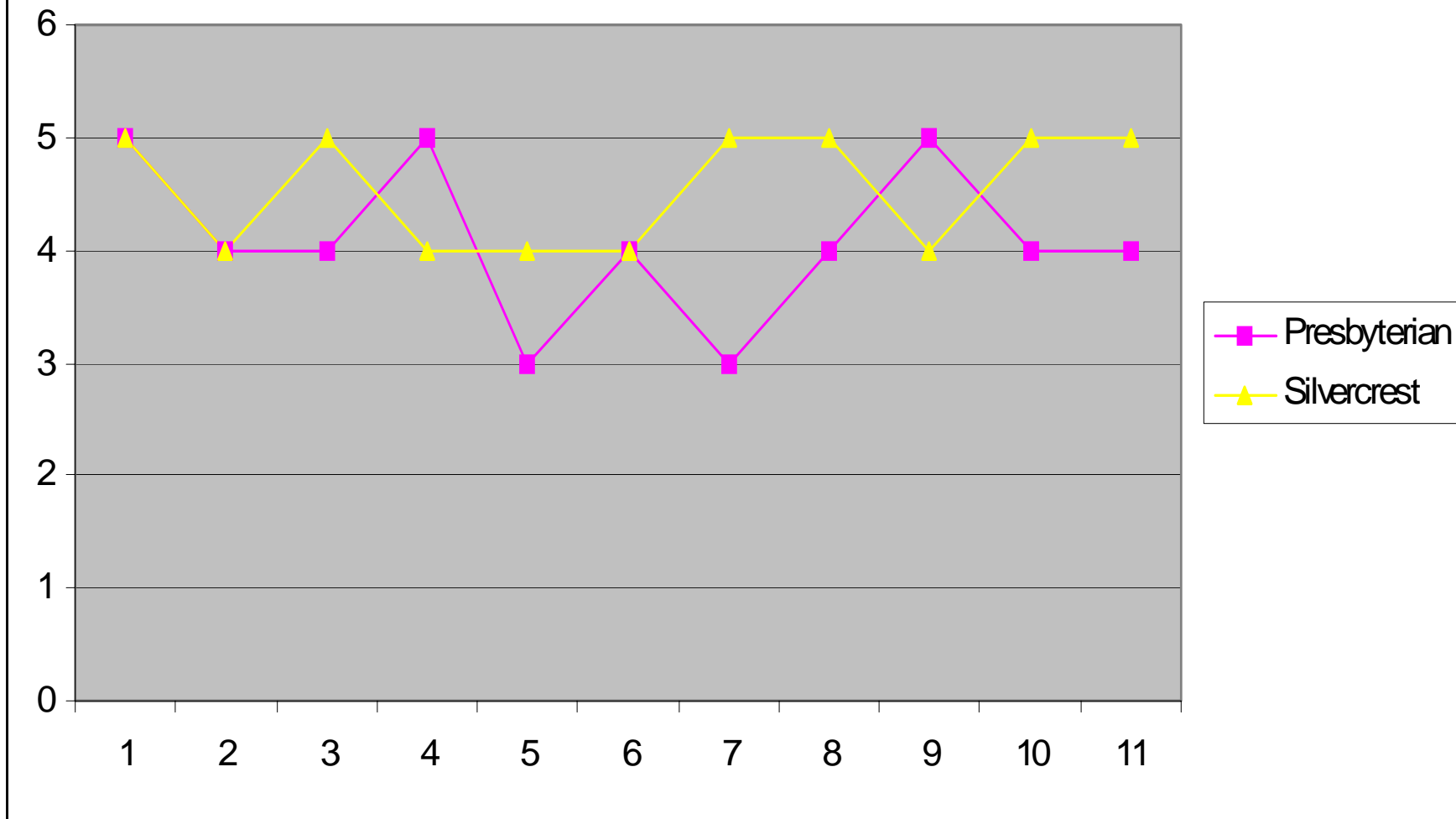
- Overall Benefits (customer needs)
 - Client satisfaction
 - Improve care
 - Reduce operating costs
 - Improve revenues
 - Clients' families' satisfaction



Categories of customer needs

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Overall Benefits



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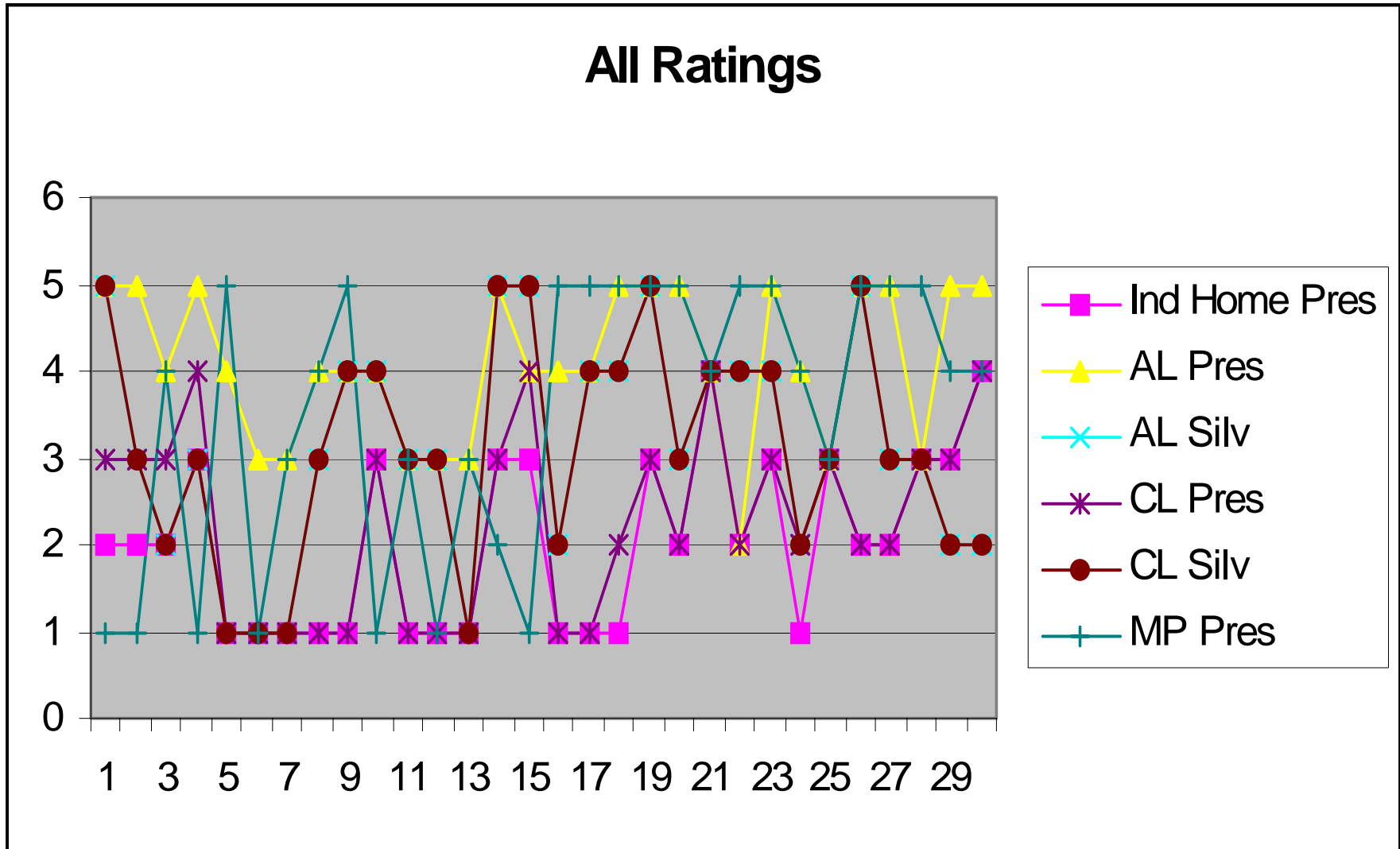
ILSA Features Rated by Customer

- Settings:
 - Independent home
 - Congregal living
 - Assisted living
 - Memory patients
- Client monitoring
- Client assistance
- Caregiver assistance
- Family satisfaction
- Other features
- Pricing



A

ILSA Features Rated by Customer



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Mann-Whitney Rank-Sum Analysis

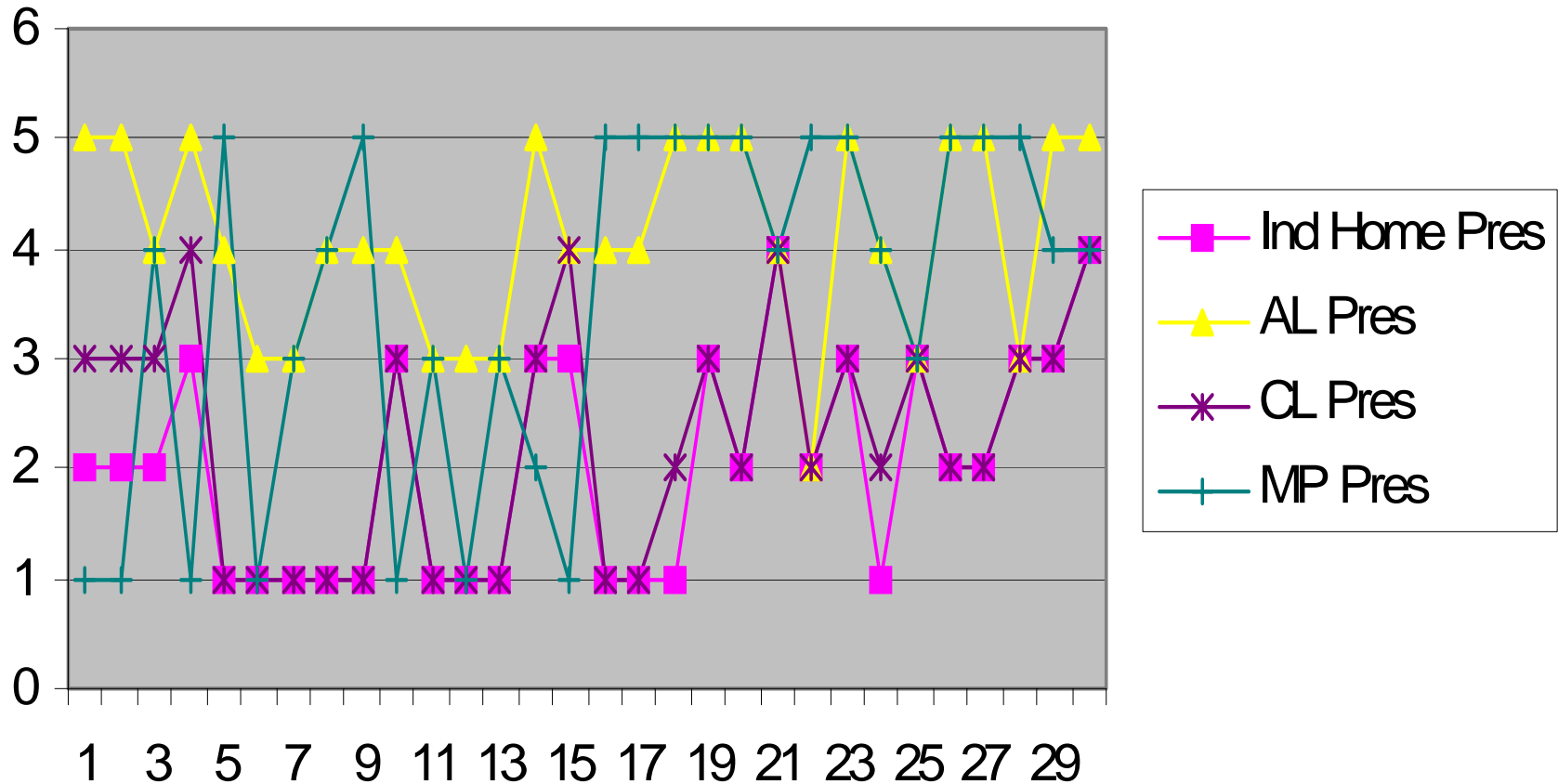
- Overall Benefits: no significant difference
- Independent Home: Silvercrest didn't rate
- Assisted Living: Silvercrest significantly lower
- Congregal Living: Silvercrest significantly higher
- Silvercrest AL and CL ratings the same, so Presbyterian AL significantly higher than Presbyterian CL
- Memory: Silvercrest didn't rate

Agreement between two data points low



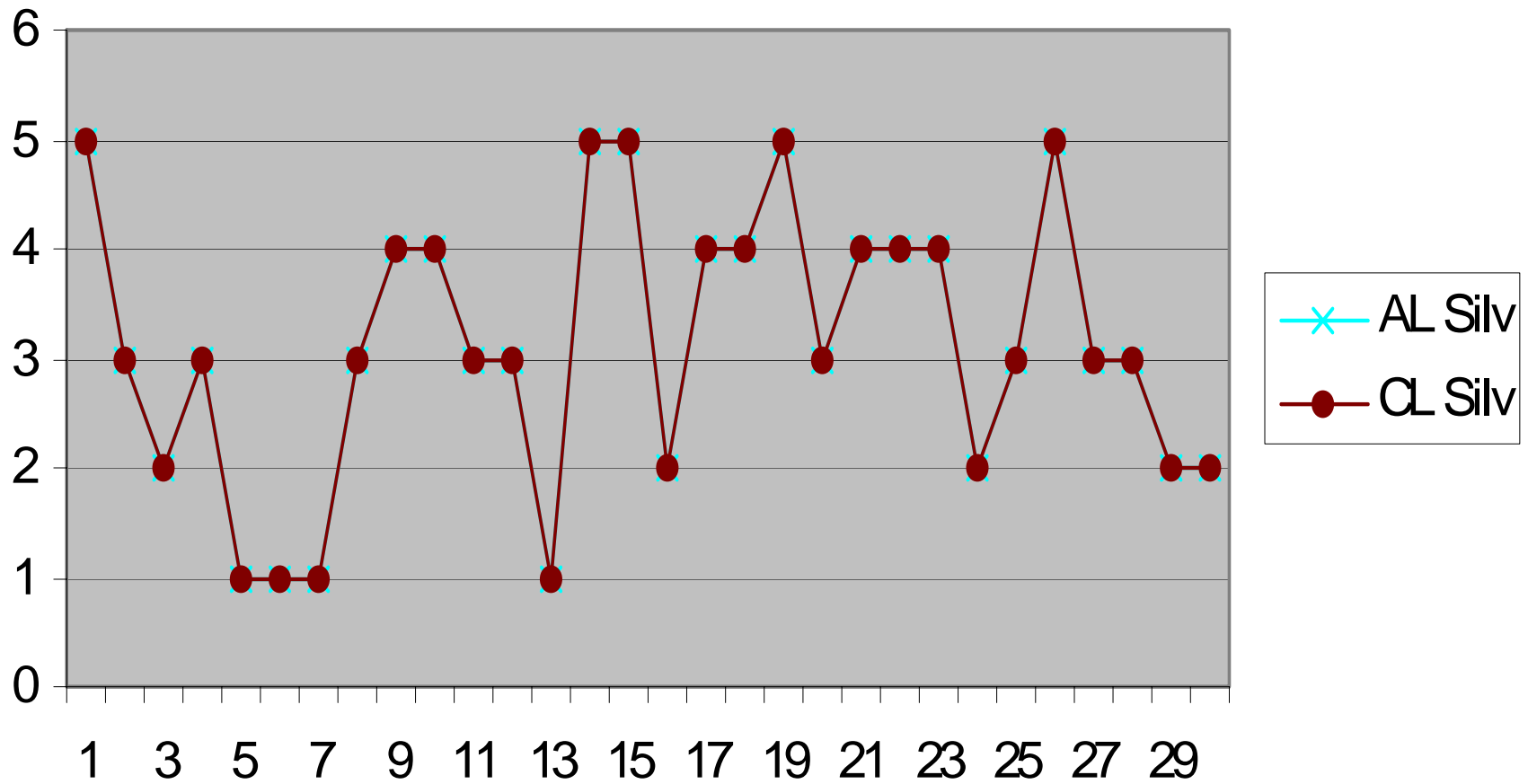
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Presbyterian Ratings



A

Silvercrest Ratings



A

Comparison of All Ratings

question	Max	Min	Median
32 caregiver to-do lists and calendars	5	3	5
41 24/7 maintenance services be for system failures	5	2	5
12 How valuable would a wearable panic button be	5	1	4
20 How valuable would location tracking be	5	1	4
26 be two-way voice communication	5	2	4
27 How valuable would a client check-in button be	5	1	4
30 caregiver access to client status via a two-way pager	5	1	4
31 alert a caregiver to specified client events via pager	5	1	4
35 log of caregiver response times to calls and time with the client	4	4	4
38 path lighting	5	3	4
45 telemetry of cardiac device events	5	2	4
22 How valuable would it be to be able to remind clients to take medication	4	1	3.5
13 How valuable would a wearable fall detection sensor be	5	1	3
15 How valuable would measures of medication compliance be	5	1	3
19 How about sleeping,	4	1	3
23 How valuable would it be to be able to remind clients to go to the bathroom	3	1	3
34 log reports of client activities and events	5	2	3
36 remote internet access by the family to client status and logs	5	2	3
40 a service that provides secure internet services and hosts system software?	3	3	3
42 to integrate all the various technologies servicing an individual client	5	2	3
43 service that configures the system for each client as they move in	5	3	3
44 continuous monitoring of client medical telemetry	5	2	3
14 How valuable would overall measurements of client's activity level be	4	2	2.5
24 to remind people to eat meals	3	1	2
29 central station console	5	1	2
39 outside service that provides 24/7 monitoring of your client data	4	1	2
16 How valuable would measures of toileting be	5	1	1
17 How about bathing	3	1	1
18 How about eating	3	1	1
25 remind people to go to bed and sleep	3	1	1

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Comparison of all ratings without memory care

question	Max	Min	Median
12 How valuable would a wearable panic button be	5	2	5
26 be two-way voice communication	5	3	5
32 caregiver to-do lists and calendars	5	3	5
41 24/7 maintenance services be for system failures	5	2	5
20 How valuable would location tracking be	4	1	4
22 How valuable would it be to be able to remind clients to take medication	4	3	4
27 How valuable would a client check-in button be	5	3	4
30 caregiver access to client status via a two-way pager	4	1	4
31 alert a caregiver to specified client events via pager	5	1	4
35 log of caregiver response times to calls and time with the client	4	4	4
38 path lighting	5	3	4
45 telemetry of cardiac device events	5	2	4
13 How valuable would a wearable fall detection sensor be	5	2	3
15 How valuable would measures of medication compliance be	5	3	3
19 How about sleeping,	4	1	3
23 How valuable would it be to be able to remind clients to go to the bathroom	3	1	3
24 to remind people to eat meals	3	1	3
34 log reports of client activities and events	5	2	3
40 a service that provides secure internet services and hosts system software?	3	3	3
42 to integrate all the various technologies servicing an individual client	5	2	3
43 service that configures the system for each client as they move in	3	3	3
44 continuous monitoring of client medical telemetry	5	2	3
14 How valuable would overall measurements of client's activity level be	4	2	2
29 central station console	4	1	2
36 remote internet access by the family to client status and logs	4	2	2
39 outside service that provides 24/7 monitoring of your client data	4	1	2
16 How valuable would measures of toileting be	4	1	1
17 How about bathing	3	1	1
18 How about eating	3	1	1
25 remind people to go to bed and sleep	3	1	1

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Comparison of Assisted Living Ratings

question	ASSISTED LIVING ONLY	Max	Min	Average
12	How valuable would a wearable panic button be	5	5	5
26	be two-way voice communication	5	5	5
32	caregiver to-do lists and calendars	5	5	5
41	24/7 maintenance services be for system failures	5	5	5
27	How valuable would a client check-in button be	5	4	4.5
31	alert a caregiver to specified client events via pager	5	4	4.5
38	path lighting	5	4	4.5
20	How valuable would location tracking be	4	4	4
22	How valuable would it be to be able to remind clients to take medication	4	4	4
30	caregiver access to client status via a two-way pager	4	4	4
35	log of caregiver response times to calls and time with the client	4	4	4
15	How valuable would measures of medication compliance be	5	3	4
13	How valuable would a wearable fall detection sensor be	5	3	4
34	log reports of client activities and events	5	3	4
42	to integrate all the various technologies servicing an individual client	5	3	4
45	telemetry of cardiac device events	5	2	3.5
19	How about sleeping,	4	3	3.5
44	continuous monitoring of client medical telemetry	5	2	3.5
23	How valuable would it be to be able to remind clients to go to the bathroom	3	3	3
24	to remind people to eat meals	3	3	3
40	a service that provides secure internet services and hosts system software?	3	3	3
43	service that configures the system for each client as they move in	3	3	3
36	remote internet access by the family to client status and logs	4	2	3
14	How valuable would overall measurements of client's activity level be	4	2	3
29	central station console	4	2	3
39	outside service that provides 24/7 monitoring of your client data	4	2	3
16	How valuable would measures of toileting be	4	1	2.5
17	How about bathing	3	1	2
18	How about eating	3	1	2
25	remind people to go to bed and sleep	3	1	2

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QFD rankings

	Rank
Panic Button	6
Fall detection - wearable device	2
Activity metric	7
Medication compliance	5
Missed Behaviors - Eating, Sleeping, Bathing, Toileting	14
Client & Staff location tracking via ID bages	1
Status and Alerts to CG- (Console, multi client summary, individual details), Pager	2
Client reminders for missing behaviors (Medication, Toileting, Meals, Sleep)	11
CG ToDo and Calendar, Client Calendar	15
History of client events	9
Log of CG resonse time, time with spent with client	12
Internet remote access family screens	10
Path Lighting	12
Check-in function	8
Medical telemetry	4



QFD / Customer Ratings Comparison

REGRESSION	Rank	QFD
How valuable would a wearable panic button be	1	6
caregiver to-do lists and calendars	1	15
How valuable would a client check-in button be	2	8
alert a caregiver to specified client events via pager	2	2
path lighting	2	12
How valuable would a wearable fall detection sensor be	4	2
How valuable would measures of medication compliance be	4	5
How valuable would location tracking be	4	1
How valuable would it be to be able to remind clients to take medication	4	11
caregiver access to client status via a two-way pager	4	2
log reports of client activities and events	4	9
log of caregiver response times to calls and time with the client	4	12
How about sleeping,	8	14
continuous monitoring of client medical telemetry	8	4
telemetry of cardiac device events	8	4
How valuable would overall measurements of client's activity level be	9	7
How valuable would it be to be able to remind clients to go to the bathroom	9	11
to remind people to eat meals	9	11
remote internet access by the family to client status and logs	9	10
How valuable would measures of toileting be	13	14
How about bathing	14	14
How about eating	14	14
remind people to go to bed and sleep	14	11

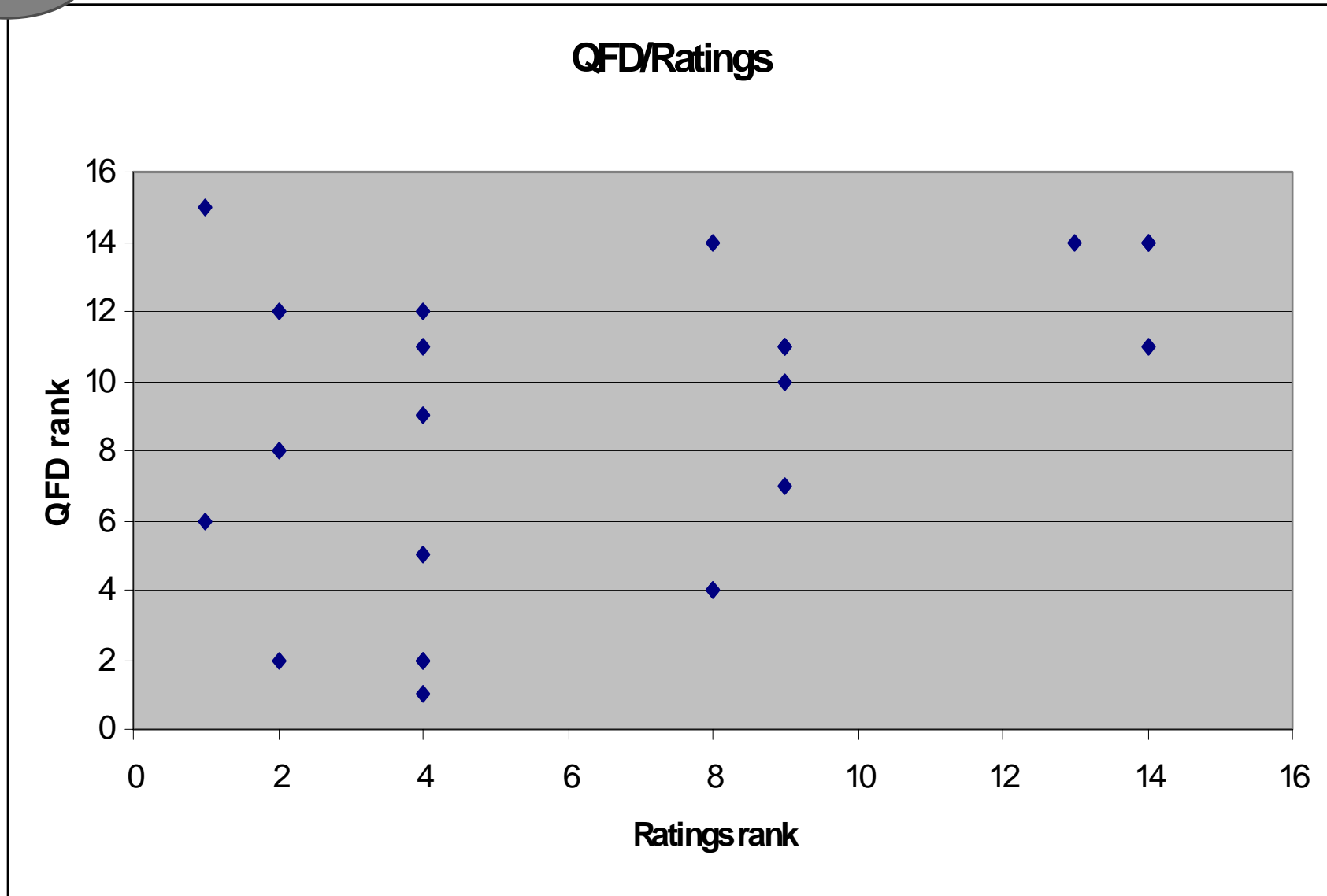
**Divergence between
QFD & survey results**

**Agreement between
QFD & survey results**



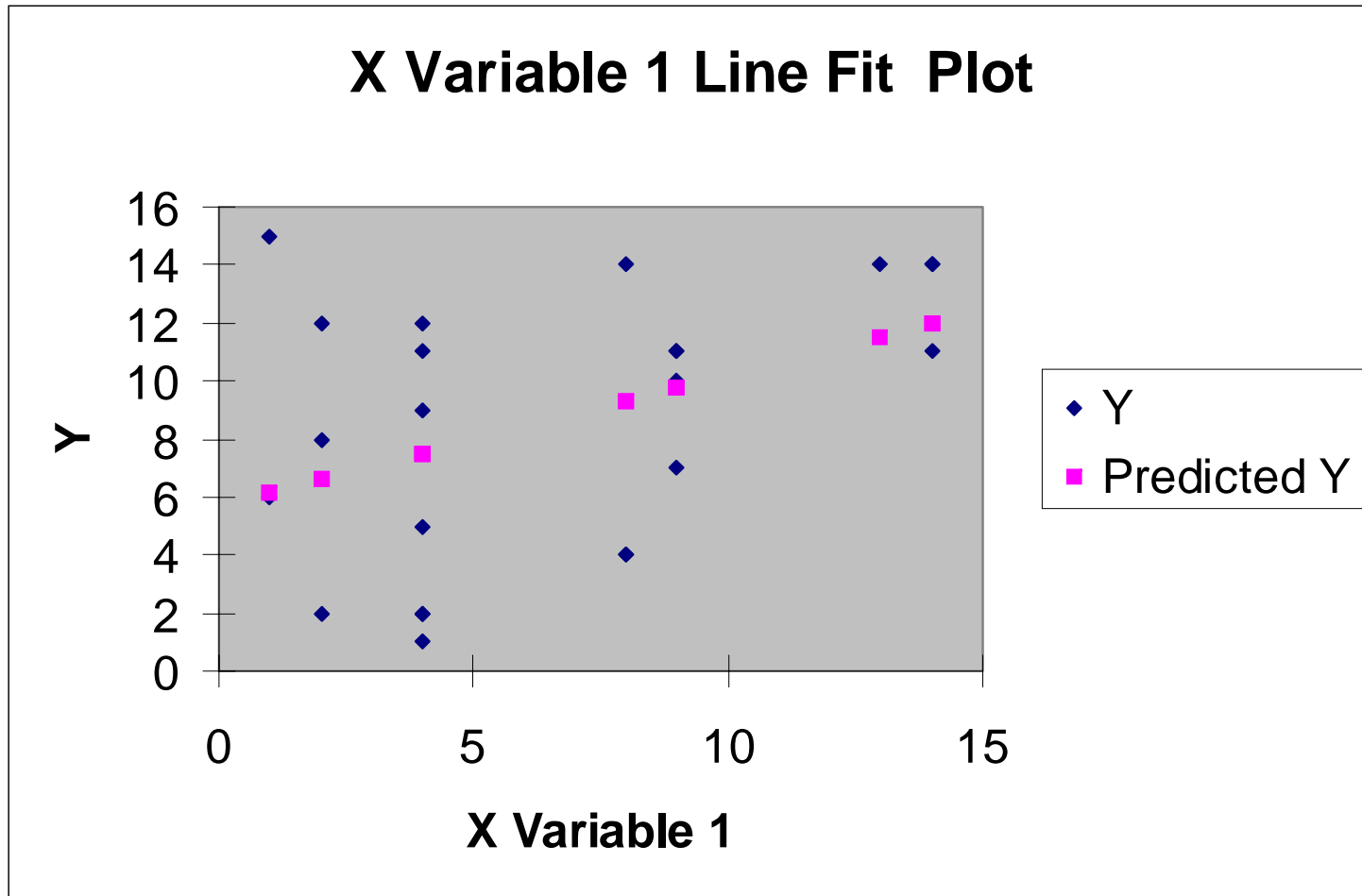
QFD / Customer Ratings Comparison

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Linear Fit



Regression Analysis

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.419541183							
R Square	0.176014805							
Adjusted R Square	0.136777414							
Standard Error	4.24481943							
Observations	23							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	80.82905939	80.82905939	4.485894791	0.046273964			
Residual	21	378.3883319	18.018492					
Total	22	459.2173913						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	5.728775597	1.639680676	3.493836136	0.002163566	2.318872371	9.138678824	2.318872371	9.138678824
X Variable 1	0.445285836	0.210239512	2.117993105	0.046273964	0.008068761	0.882502911	0.008068761	0.882502911



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What's important to Presbyterian?

Timely response to client calls:	5
Reduce staff turnover and training	5
Improve family peace of mind	5
Being able to anticipate problems before they occur	4
Reduce manual work for the staff	4
Measure staff effectiveness – response times, time spent with clients, other	4
Increasing occupancy	4
Have documentation of care giving and response times to reduce conflicts with families:	4
Help families and clients avoid full nursing care	4
Enable the staff to handle more responsibilities at once	3
Differentiating your business from competitors	3



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Presbyterian Feature Ratings for AL

How valuable would a wearable panic button be	5
How valuable would a wearable fall detection sensor be	5
How valuable would measures of medication compliance be	5
be two-way voice communication	5
alert a caregiver to specified client events via pager	5
caregiver to-do lists and calendars	5
log reports of client activities and events	5
path lighting	5
24/7 maintenance services be for system failures	5
to integrate all the various technologies servicing an individual client	5
continuous monitoring of client medical telemetry	5
telemetry of cardiac device events	5
How valuable would overall measurements of client's activity level be	4
How valuable would measures of toileting be	4
How about sleeping,	4
How valuable would location tracking be	4
How valuable would it be to be able to remind clients to take medication	4
How valuable would a client check-in button be	4
central station console	4
caregiver access to client status via a two-way pager	4
log of caregiver response times to calls and time with the client	4
outside service that provides 24/7 monitoring of your client data	4
How about bathing	3
How about eating	3
How valuable would it be to be able to remind clients to go to the bathroom	3
to remind people to eat meals	3
remind people to go to bed and sleep	3
a service that provides secure internet services and hosts system software?	3
service that configures the system for each client as they move in	3
remote internet access by the family to client status and logs	2



Other considerations

- Privacy and intrusiveness
- Legal issues
- Fall sensing important for specific individuals
- Developers see themselves as landlords rather than caretakers for independent living residents
- Ease of use determines value of many features!



Key Learnings

- Fragmented market made up of telephone, pager, Internet, and panic button solutions delivered by multiple installers/integrators
- Opportunity for company that can provide reliable, high quality recognized brand and integrate multiple systems
- Opportunity to build off building security and fire systems
- Need to beta test product in assisted living facility to determine/reconcile features and their value
- Too early for product launch -- need beta results



- Installation of alpha test units in June 2002
- Formal usability testing
- Greenbelt survey of customer feature ratings after experience with them - longitudinal analysis (rank-sum)

