Altos Computer Systems

Customer Support Evaluation

INPUT®

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Altos Computer Systems

Evaluation of:

- Customer support
- Maintenance operations
- Policies
- Procedures

INPUT

Altos Computer Systems

Agenda:

- Objectives
- Methodology/Scope
- Overview
- Dealer/User Feedback
- Customer Support Interviews
- Other Altos Interviews
- Vendor Comparisons
- Conclusions/Recommendations

Objectives

- Evaluate customer support and maintenance functions
- Compare current policies, procedures, and operations with leading competitors
- Recommend the changes required to support the marketing of Altos products and to achieve the objective of making Altos "the Nordstrom's of the computer industry"

Methodology/Scope

- Interview Altos executives, managers, employees
  - Customer support
  - Marketing
  - Manufacturing
  - Engineering
  - Logistics
  - Finance
- Review and analyze dealer/user feedback
  - Reseller advisory board tapes
  - Ted Drysdale's field trips
  - Customer complaints
- Review support center procedures
  - Response center
  - Systems specialists
  - Hardware specialists
  - Number and type of products
  - Contract offerings
- Gather information and compare specific practices and procedures with primary competitors
  - Compaq
  - DEC
  - IBM
- Develop conclusions and recommendations

Overview

- Key problem areas
  - Quality
  - Management/Measurement system
  - Cost accounting
  - Communications
  - Customer support
  - Separate charge offerings
  - Teamwork
- Key recommendations
  - Implement symptom/fix search capability
  - Implement early ship program
  - Formal sign off at product announcement and first customer ship
  - Implement service design objectives
  - Implement key measurements (customer support, engineering, manufacturing)
  - Provide most support to dealers without fee
  - Release technical information to dealers/servicers
  - Implement electronic link to dealers/servicers
  - Add additional manpower to support center until problems are managed down
  - Increase warranty to 1 year on-site

Dealer/User Feedback

Source: Reseller Advisory Board Tapes

Communications

- Lack of adequate pre-sales information on technical problems
- You should publish problems with hardware and software. Also make the information available via terminal—Others do it!
- Better feedback is needed on what action is being taken to resolve open problems
- Dealer involvement is needed to establish priorities for resolving open problems
- Communication links are very weak in light of critical user applications

Dealer/User Feedback

Source: Reseller Advisory Board Tapes

Separate Charge Offerings

- "You are charging me $1,000 per year for an 800 number to log your problems"
- Altos warranty is not adequate
  - Competition is much better
  - You can't charge a customer to go on-site to correct a warranty problem
- Training courses are too expensive and often not high quality
- It appears Altos has the intent of not giving good service
  - Call back tomorrow costs less
  - Ship parts today costs more
  - No contract = no service

Dealer/User Feedback

Source: Reseller Advisory Board Tapes

Quality

- Find the problems before you send us the products. More user testing!
- It is not clear that Altos has a beta test policy
- It is imperative that all support be in place before a product is shipped

Dealer/User Feedback

Source: Drysdale's Visits

- Dealers think Altos has a serious attitude problem (i.e., arrogant!)
    - Preannounce products
    - Take orders and ship before we are ready
    - Charging for support
    - Visa card screening
- Customer support not working partially due to lack of training
- Customer support doesn't understand that the key mission is to serve the customer

Drysdale's Conclusion: The objective should be to make Altos "The Nordstrom's of the computer industry"

Dealer/User Feedback

Summary

- You are not communicating with me relative to hardware and software problems
- "You TAX us!" It appears intent is not to give good service
- Altos needs to get in front of problems
  - Support in place before shipment
  - User test prior to volume shipments
- Overall attitude problem

Conclusion

- The concerns are very serious and reputation is a long way from Nordstrom's.

Customer Support Interviews

Communications

- Products are shipped before technical support is trained, documentation is available, and spare parts are available
- Customers are upset because we don't tell them of problems
- ECO's are not communicated to technical support
- Our customers are very angry about getting shunted around within Altos when seeking answers to problems
- The software problem report is for internal use only

Summary

- Communications are a major problem
    - Internal
    - External

Customer Support Interviews

Quality

- Altos hasn't introduced a product yet that hasn't been recalled
- Altos diagnostics are not very good. They should be in the operating system
- Software releases are being shipped before adequate testing
- Schedule has not permitted time for Beta test
- Field changes are only installed as required. Therefore, subsequent changes to software may not be tested at all levels
- Software is our number one problem
- A recent warranty study found an average of 1.2 warranty calls per machine in the first ninety days

Customer Support Interviews

Organization/Measurement System

- No product cost accounting systems is in place to tie back warranty and customer support costs to product
- We can't give answers on open problems if engineering doesn't give us answers
- A serious attitude problem exists in software engineering (i.e., "Its not my problem!")
- No maintenance manuals are available on the 500, six months after first customer ship

Customer Support Interviews

Parts Logistics

- The key customer complaints in logistics are as follows:
  - We don't always ship the same day usually because we are out of stock
  - We charge full price for a new part upon shipment and withhold credit on old part until it is received
- When parts are short, new build schedule has taken precedence over existing installed customers
- Parts orders are screened for a credit check before being sent to logistics—sometimes this causes a significant delay

Customer Support Interviews

Customer Support Operations

- No symptom/fix search capability is available to identify previously discovered problems
- No download software patch capability is in place though technically feasible
- We are responsible for over 500 software product versions plus the Altos hardware products
- In 1988, 54,525 calls were handled by the response center and 24,266 work orders were opened
- No measurements exist on length of time to close problems and backlog by specialists

Other Altos Interviews

Communications

- Products are being shipped before technical support is trained
- Dealers are upset because we don't tell them about software problems
- Field change notices and Altos Field Bulletins have not been going out
- Engineering change orders are not being communicated to technical support

Quality

- Beta Test doesn't always happen and we have no early ship user test program
- Technical quality problems are about 70% software and 30% hardware
- The warranty extension study indicates 1.2 calls per box during the first ninety days

Other Altos Interviews

Logistics

- Clearly the policy should have been and is now that installed customers get first priority on parts
- Parts logistics measurement is only after logistics gets the order. Order entry and credit check times are not measured
- Parts logistic measurements indicate 83% to 90% of parts are shipped within 24 hours

Customer Support Operations

- No one is satisfied with the response center. Can we eliminate the call back to the customer?
- The technical support personnel appear to be "burned out." Perhaps we should let them swap with the engineers for awhile
- Software packages are commercially available to do symptom/fix searches
- Under UNIX, software problems reports could come in electronically and responses can be sent electronically

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
Warranty	90 days depot*	1 year on-site thru dealers 1 year depot thru COMPAQ	1 year depot	1 year depot on PC** 1 year on-site all other except 3 year on-site for selected workstations
Warranty provided by	Authorized Dealers Altos	Dealers COMPAQ repair and exchange authorized services	DEC	Dealers IBM NSD
How reimbursed for warranty parts used	Parts credit on return	A check upon return of the old part	N/A***	Exchange for new parts
How reimbursed for warranty labor	Depot $62.50 per incident on-site min. $125. + $62.50/30 to 150 mile-$250 max.	A flat fee each call based on type of problem (per part used)	N/A	A flat fee for each call based on type of problem
Are dealers offered incentives to sell service offerings?	Yes	N/A	Yes	Yes

* Verbal-on-site for model 1000 and above, w/i 150 miles

** PC is on-site for CSA and MRSA customers

*** N/A—not applicable

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
Item required to certify others to service products	Required/ Separate Charge	Required/ Separate Charge	Required/ Separate Charge	Required/ Separate Charge
Hardware Training	Yes/Yes	Yes/No	N/A*	Yes/No (number limited)
Software Training	Yes/Yes	N/A	N/A	Yes/No
Spare Parts Inventory	Yes/Yes	Yes/Yes	N/A	Yes/Yes
Hardware Documentation	Yes/Yes***	Yes/No	N/A	Yes/No
Software Documentation	Yes/Yes***	N/A	N/A	Yes/No
Telephone Support	Yes/Yes	No/N/A	N/A	Yes/NA**
MVET Provide Warranty Service	No	Yes/N/A*	N/A	Yes/NA

* Not Applicable (DEC does not "authorize" others to perform service)

** A customer service counter is required which handles both telephone and walk-in requests

*** Included with training

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM**
How is the following information provided to dealers?	How*/Charge	How*/Charge	How*/Charge	How*/Charge
Open Hardware Problems	C and AFB/ Yes	P***/No	B/No	B/No
Open Software Problems	C/Yes	N/A	B/No	B/No
EC Change Notices (HDW)	C/Yes	P***/No	B/No	B/No
Software Temporary Fixes	C/Yes	N/A	B/No	B/No
Software Updates	C/Yes	N/A	B/No	B/No

* How— P—Paper
E—Electronic
B—Both paper and electronic
C—Call only
AFB—Altos Field Bulletin

** IBM has an electronic dealer bulletin board system that allows data base search. IBM reports that they have not had to make EC changes on PCs and do not have many application software products.

*** Technical bulletins, service advisories

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
How is the following information provided to end users? Is there a separate charge?	How*/ Separate Charge	How*/ Separate Charge	How*/ Separate Charge	How*/ Separate Charge
Open Hardware Problems	C and AFB/ Yes	P**/No	B/No	P/Yes
Open Software Problems	C/Yes	N/A	B/No	B/No
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AFB—Altos Field Bulletin

** Technical update bulletins

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
Are new products "user tested: before starting regular shipments?				
Hardware	No	Yes	Yes	Yes, internal for PCs external for others' products
Software	No	N/A	Yes	Yes, internal for PCs external for others' products
Are "end users" required to call the dealers for call screening	Yes, unless they buy tech support contract	Yes	N/A*	Yes
If users' dealer is out of business or refuses to help, does the company take the call?	Yes at a charge**	No**	N/A*	No**

* Not Applicable
** They are referred to another dealer if possible!

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
Is Telephone technical support provided to the following, and is there a separate charge for this support?	Telephone Support/ Charge	Telephone Support/ Charge	Telephone Support/ Charge	Telephone Support/ Charge
Dealers who do not service	Yes/Yes	N/A*	Yes/No	N/A*
Dealers who service	Yes/Yes	Yes/No	N/A	Yes/No
Authorized Servicers	Yes/Yes	Yes/No	N/A	N/A
End Users	Yes/Yes	No/N/A	Yes/Yes	No/N/A
Is a responsible time guaranteed for telephone technical support?	Yes	No	No	No**
What is the average response time?	24 hours	3 minutes	Depends on product and contract	Information not available

* Not applicable

** Objective is 80% in less than 2 hours; high priority is 100% in 1 hour.

INPUT

Vendor Comparison

	1000 Dealers ALTOS	2800 Dealers WW COMPAQ	DEC	2000 Dealers IBM
Is technical support hotline centrally located or in several locations?	Central	Central	3 locations in USA	Central
Are specialists immediately accessible or is the dealer usually called back?	Called back	Called back	Called back	Called back
Do operators log in the calls and provide status reports?	Yes	Yes	Yes	Yes*
How is the success of the hotline measured?	Response time # complaints	Response time vs. objectives	Customer satisfaction survey	Response time close out time customer satisfaction survey
How many calls per day do tech reps handle?	?	60	Proprietary	Proprietary**
How are tech reps trained?	Altos formal classes, on-the-job, phone experience, meetings	Formal classroom on each product	Formal hardware and software training, programmed instruction	Formal hardware and software training, self study courses

* IBM also has an electronic mail system in conjunction with their data base search that allows dealers to log in customers rather than through the response center operator.

** In 1988 the center logged in 265,000 calls.

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Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
How many tech reps per dealer?	? 1000/11	Proprietary	Proprietary	Proprietary
How is the productivity of the tech reps improved?	?	Electronic Data Bases Level 1 Level 2 Escalation	Symptom/fix search measurements co-locate hardware and software experts	Symptom/fix search training response and close out measurements
How are problems reported to your support center accepted?				
Hardware	Verbally-Yes 85% Mail/Fax-Yes 15% Electronically-No	Verbally-Yes Mail-Yes Electronically-Yes	Verbally-Yes Mail/Fax-Yes Electronically-Yes	Verbally-Yes Mail/Fax-Yes Electronically-Yes
Software	Verbally-Yes 85% Mail/Fax-Yes 15% Electronically-No	N/A	Verbally-Yes Mail/Fax-Yes Electronically-Yes	Verbally-Yes Mail/Fax-Yes Electronically-Yes

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
Are dealers allowed to return parts if overstocked?	Yes*	Yes	N/A**	Yes, limited to certain part #s
Are dealers charged extra for fast delivery on parts?	Yes, expedited—$100/line item Counter/counter—$150	No	Yes	Yes, if not warranty—$25/line item
If "yes", does the charge cover the following? Fast Delivery	Yes	N/A	Yes	Yes
Same Day Shipping	No	N/A	No	Yes
What type of parts discounts do you provide to authorized dealers and services? Flat	Yes—40%	No	No	33%
Volume	No	No	Yes	No

* Within 6 months, 15% of parts (up to $1 million) for parts credit.
Restocking fee—20%

** Not Applicable

Conclusions

- The new quality organization was a good decision!
- To achieve a "Nordstrom" reputation, everyone must be involved and feel responsible for customer support
- Disciplines and objectives in product design, product announcement, product release, and product support are needed
- The response center log entry into the problem management system should be retained
- Significant improvements are possible in technical support
- Cost recovery for most dealer support should not be separately priced
- Warranty should be increased

Recommendations

Customer Support

- Implement additional measurements
    - Length of time to close calls
    - Number of calls by specialist
    - Open calls by how long open
    - Number of customers per open problem
    - Formal complaint tracking system
    - Total parts waiting time including credit check
- Increase warranty to one year on-site
- Implement same day parts shipment if order received by 2 p.m. at no additional charge except delivery
- Implement "no charge" phone support to dealers and authorized servicers
- Provide "no charge" training to dealers within limits
- Implement electronic mail to dealers and authorized servicers at "no charge"
- Merge Altos on-site technical support with other customer support group
- Move from 3 to 1 authorized service organizations

Recommendations

Customer Support

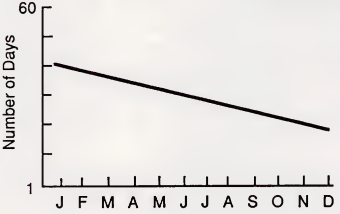
- Extend customer support hours to match time zones—5:30 a.m. to 5:30 p.m.
- Release software and hardware problem data to dealers and authorized servicers
- Implement symptom/fix search capability
- Implement download patch capability via modem
- Move parts, software updates, and documentation directly to department involved (Interface to dealers)
- Implement formal escalation procedure to company president or "assigned duty" executive
- Use touch tone call selection and record top problems under each major software package
- Add additional head-count to customer support area until level of problems are reduced

Product Development

- Implement a formal sign-off procedure to assure customer support capability
  - Product announcement
  - First customer ship
- Implement an "Early Ship" program (customer test)
- Measure engineering on open-problem status and action plan
- Implement service design objectives
  - Failure rate
  - Service cost percentage
  - Remote diagnostic capability
  - Resident Q. & A. data base
- Implement cost accounting back to product manager for customer support and warranty costs

1.

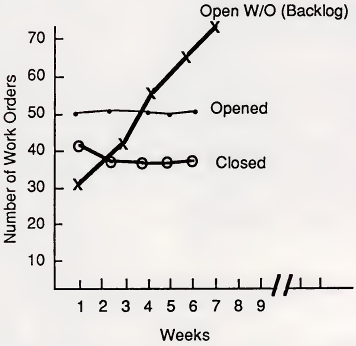
AVERAGE LENGTH OF TIME TO CLOSE WORK ORDERS



Source: Archive data/month
Calculate: # days lapsed per W/O closed
Plot:
1. Overall
2. By group
3. By specialist
4. By product

2.

WORK ORDER DYNAMICS



Source: Archive data/week
Total open work orders

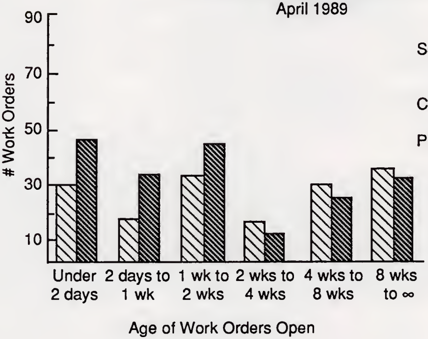
Calculate: # opened/week
# closed/week
Open backlog = Starting balance
+ W/O opened
- W/O closed

Plot:
1. Overall
2. By group
3. By specialist
4. By product

3.

OPEN WORK ORDERS BY AGE

April 1989



Source: Work orders still open (backlog)

Calculate: Age of open work orders

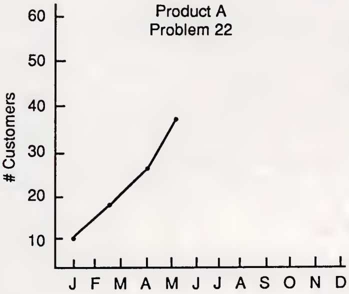
Plot:
1. Overall
2. By group
3. By specialist
4. By product

▧ This month

▩ Last month

4.

NUMBER OF CUSTOMERS PER OPEN PROBLEM



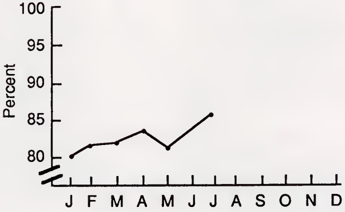
Source: Open work order file

Calculate:
1. Sort open work orders by product
2. Ask specialists to analyze and assign problem #s
3. Sort by problem # and count # customers

Plot: By problem # by product

5.

PERCENT PART ORDER LINE ITEMS SHIPPED THE SAME DAY ORDERED



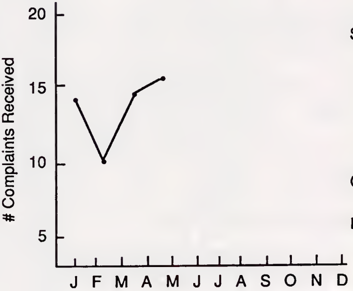
Source: Parts order system. Count day ordered time as prior to credit check.

Calculate: Match day ordered to day shipped by line item to determine # shipped. Count # line items by day ordered. Calculate %.

Plot: % by month

6.

DEALER/CUSTOMER COMPLAINTS



Source: Send memo to all Altos Mgmt. that copies of all complaints be sent to one person at headquarters (written and verbal should both be documented)

Calculate: # received/month

Plot:
1. Overall
2. By product
3. By region

DONE
WAITING FOR BUDDY TO CALL

FAX COVER SHEET

TO: Andrea Jeris

LOCATION: INPUT - MT View

FROM: Buddy Stigler

INPUT HARTSDALE

DATE: ____________

NUMBER OF PAGES: 1 OF 9

CONFIDENTIAL: YES___ NO ✓ URGENT: YES ✓ NO___

DESCRIPTION:

Please update per handwriting inserts and make 15 copies on 8½ X 11 - No binding necessary - I will want some sent to Altos and some to me - will call you tomorrow or Friday -

Vendor Comparison

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Are dealers allowed to return parts if overstocked?	Yes*	yes	N/A**	Yes, limited to certain part #s
Are dealers charged extra for fast delivery on parts?	Yes, expedited—$100/line item Counter/counter—$150	NO	Yes	Yes, if not warranty—$25/line item
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Dealers who service	Yes/Yes	Yes/No	N/A	Yes/No
Authorized Servicers	Yes/Yes	Yes/No	N/A	N/A
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If users' dealer is out of business or refuses to help, does the company take the call?	Yes at a charge**	No**	N/A*	No**

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** They are referred to another dealer if possible!

INPUT

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM
How is the following information provided to end users? Is there a separate charge?	How*/ Separate Charge	How*/ Separate Charge	How*/ Separate Charge	How*/ Separate Charge
Open Hardware Problems	C and AFB/ Yes	** P/NO	B/No	P/Yes
Open Software Problems	C/Yes	N/A	B/No	B/No
EC Change Notices (HDW)	C/Yes	** P/NO	B/No	P/Yes
Software Temporary Fixes	C/Yes	N/A	B/No	B/No
Software Updates	C/Yes	N/A	B/No	B/No

* How—
P—Paper
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AFB—Altos Field Bulletin

** Technical update Bulletins

Vendor Comparison

	ALTOS	COMPAQ	DEC	IBM**
How is the following information provided to dealers?	How*/Charge	How*/Charge	How*/Charge	How*/Charge
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***— Technical Bulletins, Service Advisories

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Hardware Training	Yes/Yes	Yes/N	N/A*	Yes/No (number limited)
Software Training	Yes/Yes	~~Yes~~ N/A	N/A	Yes/No
Spare Parts Inventory	Yes/Yes	Yes/Yes	N/A	Yes/Yes
Hardware Documentation	Yes/Yes***	Yes/ N	N/A	Yes/No
Software Documentation	Yes/Yes***	~~Yes~~ N/A	N/A	Yes/No
Telephone Support	Yes/Yes	No/NA	N/A	Yes/NA**
MVET Provide Warranty Service	No	Yes/N/A*	N/A	Yes/NA

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*** N/A—not applicable

Altos Computer Systems

Evaluation of:

- Customer Support
- Maintenance Operations
- Policies
- Procedures

Input

2,

Altos Computer Systems

Agenda:

- Objectives
- Methodology / Scope
- Overview
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- Customer Support Interviews
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- Conclusions / Recommendations

Input

OBJECTIVES

- Evaluate customer support and maintenance functions.
- Compare current policies, procedures and operations with leading competitors.
- Recommend the changes required to support the Marketing of Altos products and to achieve the objective of Making Altos "the Nordstrom's of the Computer Industry."

METHODOLOGY / SCOPE

- Interview Altos Executives, Managers, Employees
  - Customer support
  - Marketing
  - Manufacturing
  - Engineering
  - logistics
  - Finance
- Review and Analyse Dealer/User Feedback
  - Reseller Advisory Board Tapes
  - Ted Drysdale's Field Trips
  - customer complaints
- Review support center procedures
  - Response center
  - Systems Specialists
  - Hardware Specialists
  - Software Specialists
  - Number and Type of Products
  - contract~~s~~ offerings
- Gather information and Compare specific practices and procedures with primary competitors
  - Compaq
  - DEC
  - IBM
- Develop Conclusions and Recommendations

OVERVIEW

KEY Problem Areas

- Quality
- Management measurement System
- cost [illegible] Accounting
- communications
- customer support
- Separate charge [illegible] OFFERINGS
- ~~Lack of~~ Teamwork

KEY Recommendations

- Implement symtom/Fix search capability
- Implement Early Ship Program
- Formal sign off at Product Announcement and customer ship
- Implement Service Design objectives
- Implement Key Measurements (customer support, Engineering, MFG)
- Provide most support to dealers w/o Fee
- Release Technical Information to Dealers/servicers
- Implement Electronic link to Dealers/servicers
- Add Additional Manpower to support center until problems are managed down -
- Increase warranty to 1 year onsite
- ~~Implement cost Accounting~~

DEALER /USER Feedback

Source; Reseller Advisory Board Tapes

Communications

- Lack of adequate presales information on Technical Problems
- You should publish problems with hardware and software. Also make the information available via terminal — other do it!
- Better feedback is needed on what action is being taken to resolve open problems —
- Dealer involvement is needed on setting priorities on resolving open problems —
- Communication links are very weak in light of critical user applications.

DEALER / USER Feedback

Source of Reseller Advisory Board Tapes

$ Separate charge offerings

- "You are charging me $1,000 per year for an 800 number to log your problems"
- Altos warranty is not adequate
  - competition is much better
  - You can't charge customer to go onsite to correct a warranty problem
- Training courses are too expensive and often not high Quality —
- It Appears ALTOS has the intent of not giving good service
  - call back tomorrow costs less
  - ship parts today costs more
  - no contract = no service

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DEALER / USER FEEDBACK

Source: Reseller Advisory Board Tapes

Quality

- Find the problems before you send us the product. More user testing!
- It is not clear that Altos has a Beta test policy.
- It is imperative that all support be in place before a product is shipped—

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DEALER /USER FEEDBACK

Source: Ted DrysDales Visits

☐ Dealers think Altos has a serious Attitude problem (i.e arrogant!)
  - Preannounce Products
  - Take orders ~~and~~ ship before we are ready
  - charging for support
  - Visa card screening

☐ Customer support not working partially due to lack of training

☐ Customer support doesn't understand that the Key mission is to serve the customer

Drysdale's conclusion:

~~Altos~~ The objective should be to make Altos "the Nordstrom's of the computer Industry —"

DEALER/ USER FEEDBACK

SUMMARY

- You are not communicating with me relative to Hardware and Software Problems —
- "You TAX US!" It Appears intent is not to give good service –
- ALTOS needs to get in front of problems
  - — support in place before shipment
  - — USER Test prior to volume shipments
- Overall Attitude problem

Conclusion:

The concerns are very serious and reputation is a long way from Nordstrom's.

CUSTOMER SUPPORT InterVIEWS

communications

- Products are shipped before technical support is trained, documentation is available and spare parts are available —

- Customers are upset because we don't tell them of problems.

- ECO's are not communicated to Technical support

- Our customers are very angry about getting ~~bundled~~ shunted around within ALTOS - when seeking answers to problems.

- The software problem report is ~~shipped~~ for internal~~y~~ use only —

Summary

Communications are a major problem
- Internal
- External

CUSTOMER SUPPORT Interviews

Quality

- Altos hasn't introduced a product yet that hasn't been recalled —
- ~~Our~~ Altos diagnostics are not ~~real~~ very good. They should be in the operating system.
- Software releases are being shipped before adequate testing —
- ~~The [illegible]~~ Schedule has not permitted time for Beta test —
- Field changes are only installed as required, therefore subsequent changes to software may not be tested at all levels.
- Software is our number 1 problem
- A recent warranty study found ~~[illegible]~~ an average of 1.2 warranty calls per machine in the first ninety days —

Customer Support Interviews

Organization / Measurement System

- No product cost accounting system is in place to tie back warranty and customer support costs to the product –

- we can't give answers on open problems if engineering doesn't give us Answers –

- A serious attitude problem exists in software engineering (ie "It's not my problem!")

- No maintenance manuals are available on the 500, six months after first customer ship —

CUSTOMER SUPPORT Interviews

Parts Logistics

- The key customer complaints in logistics are as follows:
  1. we don't always ship the same day usually because we are out of stock —
  2. we charge full price for a new part, upon shipment and ~~give~~ withhold credit ~~on return of old part~~ on old part until it is received.

  ~~3~~

- when parts are short, new build schedule has taken precedente over existing installed customers —

- Parts orders are screened for a credit check before being sent to logistics - sometimes this causes a significant delay. ~~they stay a [illegible] long time~~ —

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Customer Support ~~Centers~~ Interviews

Customer Support Operations

- No symtom/FIX search capability is available to identify previously discovered problems —
- No download software patch capability is in place though technically feasible —
- We are responsible for over 300 software product versions plus the ALTOS Hardware products
- Response Center wait time is averaging 18 to 23 minutes.
- In 1988, 34,525 calls were handled by the response center and 24,266 work orders were opened —
- No measurements exist on lenght of time to close problems and backlog by specilists —

OTHER ALTOS INTERVIEWS

Communications

- Products are being shipped before technical support is trained –
- Dealers are upset because we don't tell them about software problems
- Field change notices and ALTOS Field Bulletins have not been going out –
- Engineering change orders are not being communicated to technical support –

Quality

- Beta Test doesn't always happen and we have no early ship user test program –
- Technical quality problems are about 20% software and 30% hardware –
- The warranty extension study indicates 1.2 calls per box during the first ninety days –

OTHER ALTOS INTERVIEWS

Logistics

- Clearly the policy [illegible] should have been and is now that installed customers get first priority on parts —
- Parts logistics measurement is only after logistics gets the order. Order-entry and credit check times are not measured —
- Parts logistic measurements indicate 83% to 90% of parts are shipped within 24 hours

CUSTOMER Support OPERATIONS

- No one is satisfied with the response center. Can we eliminate the call back to the customer?
- The technical support personnel appear to be "burned out". Perhaps we should let them swap with the engineers for awhile —
- Software packages are available to do symtom/Fix searches —
- Under UNIX, software problems reports ~~[illegible]~~ can come in electronically and responses can be sent electronically

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VENDOR COMPARISON

	ALTOS	COMPAQ	DEC	IBM
Warranty	90 days Depot *	1 year on site thru dealers 1 year Depot thru compaq	1 year Depot	1 year Depot on PC ** 1 year on site all other Except 3yr on site for selected workstations
Warranty Provided by	Authorized Dealers Altos *	Dealers Compaq Repair and Exchange	DEC	Dealers IBM NSD
How ~~do you~~ reimbursed for warranty parts used	Parts credit on Return	Exchange for new parts	N/A ***	Exchange for new part
How are ~~do you~~ reimbursed for Warranty Labor	Depot $62.50 per ~~call~~ incident on site min $125. + $62.50/50 mile to 150 mile — $350 MAX	A Flat fee for each call based on type of problem.	N/A ***	A Flat fee for each call based on type of Problem
Are dealers ~~Do you~~ offered ~~Dealers~~ incentives to sell ~~your~~ service offerings?	Yes	N/A	Yes	Yes

* Verbal-on site for MODEL 1000 and Above, w/i 150 miles

** P/C is on site for CSA and MRSA customers

*** N/A - not applicable

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VENDOR Comparison

ITEMS Required To Certify others to service ~~your~~ Products	ALTOS		COMPAQ		DEC		IBM	
	~~Req/charge~~ Required	Separate charge	~~Req/charge~~ Required	Separate charge	~~REQ/charge~~ Required	Separate charge	~~Req/charge~~ Required	Separate charge
Hardware Training	Yes	Yes	Yes		N/A*		Yes	No (Number limited) ~~with limits~~
Software Training	Yes	Yes	Yes		N/A		Yes	NO
Spare Parts Inventory	Yes	Yes	Yes	Yes	N/A		Yes	Yes
Hardware Documentation	Yes	Yes ***	Yes		N/A		Yes	NO
Software Documentation	Yes	Yes ***	Yes		N/A		Yes	NO
Telephone support	Yes	Yes			N/A		Yes	N/A **
Must Provide Warranty Service	NO		Yes	N/A*	N/A		Yes	N/A

* Not applicable

~~*~~(DEC does not "Authorize" others to perform service)

** A customer service counter is required which handles both telephone and walk in requests.

*** Included with Training?

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VENDOR COMPARISONS

How ~~do you provide~~ is the following information provided to ~~[illegible]~~ ~~your~~ Dealers?

	Altos How*/charge	Compaq How*/charge	DEC How*/charge	IBM ** How*/charge
Open Hardware Problems	C~~[illegible]~~ and AFB / Yes	/	B / NO	B / No
Open software Problems	C~~[illegible]~~ [illegible] / Yes	/	B/NO	B/NO
EC Change Notices (HOW)	C~~[illegible]~~ [illegible] / Yes	/	B/NO	B/NO
Software Temporary Fixes	C~~[illegible]~~ / Yes	/	B/NO	B/NO
Software Updates	C ~~[illegible]~~ / Yes	/	B/yes	B/NO

** IBM has an electronic dealer Bullitin board system that allows data base search.
IBM reports that they have not had to make EC changes on P/C's and that in the P/C Area they are supporting very little software since they do not have ~~many~~ many Application software products.

* How

P – Paper
E – Electronic
B – Both paper + electronic
C – Call only
AFB' – ~~AFB.~~ Altos Field Bulletin

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VENDOR COMPARISON

How is ~~Do you provide~~ the following information provided to ~~your~~ endusers ~~and~~ is there a separate charge? ~~do you charge~~ ~~[illegible]~~	ALTOS *How / separate charge	COMPAQ *How / separate charge	DEC *How / separate charge	IBM *How / separate charge
Open Hardware Problems	AFB and C / yes		B / NO	P / yes
Open Software Problems	C / yes		B / NO	B / NO
EC change Notices (H/W)	C / yes		B / No	P / Yes
Software Temporary Fixes	C / yes		B / NO	B / NO
Software Updates	C / yes		B / NO	B / NO

*How: C - call only
P - Paper
E - Electronic
B - Both
AFB - Altos Field Bulletin

VENDOR COMPARISON

	ALTOS	COMPAQ	DEC	IBM
~~Do you~~ ~~USER Test~~ Are ~~your~~ New Products "user tested" Before starting Regular Shipments?				~~Yes, internal for PC's external for others~~
Hardware	no		Yes	Yes, internal for PC's External for others products
~~Software~~				
software	no		Yes	" "
~~Do you~~ Are "end users" required to call the dealers for call screening	Yes unless they buy Tech support contract		N/A*	Yes
If user's dealer is out of business or refuses to help, does the ~~you~~ co. take the call?	Yes at a charge — ** ~~after effort~~ ~~to another~~		N/A*	No **

* - Not applicable

** They are referred to another dealer, if possible!

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VENDOR COMPARISON

~~Do you provide~~ Is telephone technical support ~~to the~~ provided to the following, and ~~do you charge separately~~ is there a separate charge for this support?	ALTOS telephone support / charge	COMPAQ telephone support / charge	DEC telephone support / charge	IBM ~~Provide~~ telephone support / charge
Dealers who do not service	Yes / Yes		Yes / NO	N/A *
Dealers who service	Yes / Yes		N/A	Yes / NO
Authorized Servicers	Yes / Yes		N/A	N/A
End USERS	Yes / Yes		Yes / Yes	NO / N/A
Is a response time ~~do you~~ guaranteed ~~response time~~ for Telephone Technical support	Yes		NO	NO **
What is ~~yo~~ the average response time	24 hrs		Depends on Product and contract	Information not Available

* Not ~~available~~ applicable

** objective is 80% in less than 2hrs, High priority is 100% in 1 hour

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VENDOR Comparison

	1000 Dealers ALTOS	Compaq	DEC	2000 Dealers IBM
Is ~~your~~ technical support Hotline centrally Located or in several locations	central	central	~~[illegible]~~ 3 Locations in USA	central
Are specialists immediately accessable or ~~[illegible]~~ is the dealer usually called back —	called Back		called Back	called Back
Do ~~you have~~ operators ~~that~~ log in the calls and provide status reports	Yes		YES	Yes *
How is ~~do you measure~~ the success of the Hotline service measured?	Response Time # complaints		customer satisfaction survey	Response Time close out Time, customer satisfaction survey
How many calls per day do Tech Reps handle ?	?		proprietary	Proprietary **
How are Tech Reps Trained?	Altos Formal Classes On the Job Phone Experience Meetings		Formal Hardware and Software Training - Programmed Instruction	- Formal Hardware and Software Training - Self study courses

** In 1988 the center logged in 265,000 calls

* IBM also has an electronic mail system in conjunction with their data base search that allow dealers to log in questions rather than through the response center operator

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B

VENDOR COMPARISON

	ALTOS	COMPAQ	DEC	IBM
How many Technical Reps per Dealer ~~do you have~~ ?	? 1000/11		Proprietary	Proprietary
How ~~do you improve~~ is the productivity of the technical Reps improved?	Kick in the Ass 2 supervisors [illegible]		Symptom/Fix Search Measurements colocate Hardware and Software experts	Symptom/Fix Search Training Response & Close out measurements
How are ~~Do you~~ ~~Accept~~ ~~Hardware~~ problems reported to your support center ~~in the following ways~~ accepted?				
Hardware				
Verbally	Yes 85%		— —	Yes
Mail/FAX	Yes 15%			Yes
Electronically	no			Yes
Software				
Verbally	Yes 85%			Yes
Mail/FAX	Yes 15%			Yes
Electronically	NO		—	YES

VENDOR COMPARISON

	ALTOS	Compaq	DEC	IBM
~~Do you allow~~ Are dealers allowed to return parts if overstocked?	YES* ~~[illegible]~~			Yes, limited to certain part #'s
~~Do you charge~~ Are Dealers charged ~~for~~ Extra for fast Delivery on Parts	Yes Expedited - $100/line item Counter/counter $150			Yes, if not warranty. $25/line item
If "yes", does the charge cover the following?				
Fast Delivery	Yes		Yes	Yes
Same Day shipping	NO		NO	Yes
What Type of Parts Discounts do you provide to Authorized Dealers and servicers				
Flat	Yes 40%	[illegible]	NO	Flat 33%
Volume	NO	[illegible]	Yes	no

* Within 6 mo., 15% ~~[illegible]~~ of parts (up to $1 million) for ~~equal dollars~~ parts credit. Restocking fee 20%.

conclusions

- The New Quality organization ~~is needed~~ was a good decision!
- ~~USER Testing is needed~~
- To Achieve a "Nordstrom" reputation, everyone must be involved and feel responsible for customer support
- ~~All~~ Disciplines and Objectives in product design, product Announcement, ~~and~~ product release ~~are needed~~ and product support are needed-
- The Response center log entry into the problem management system should be retained.
- Significant improvements are possible in technical support. ~~by releasing more information [illegible] [illegible]~~

~~To regain dealer loyalty~~

- cost recovery for most dealer support should not be separately priced-
- Warranty should be increased

RECOMMENDATIONS

CUSTOMER SUPPORT

- Implement additional Measurements
  - Length of time to close calls
  - number of calls by specialist
  - open calls by how long open
  - number of customers per open problem -
  - Formal complaint tracking system
  - Total parts waiting Time including credit check
- Increase warranty to one year on site.
- Implement "no charge" phone support to dealers and Authorized servicers -
- Provide "no charge" training to dealers within limits.
- Implement electronic mail to dealers and Authorized servicers at "no charge" -
- merge Altos on-site technical support with other customer support group -
- move from 3 to 1 authorized service organizations -

Recommendations: (contd)

customer support

- Extend customer support hours to match time zones – 5:30 AM to 5:30 PM

- Release software + hardware problem data to dealers + authorized servicer.

- Implement symtom\fix search capability.

- Implement download patch capability via modem.

- Move parts, software updates, and documentation directly to department involved. (Interface to dealers.)

- Implement formal escalation procedure to company president or "assigned duty" executive.

- Add additional head-count to customer support area until level of problems are reduced.

- use touch tone call selection and record top problems under each major software package

☐ Product Development:

- Implement a formal sign-off procedure to assure customer support capability –
    - Product announcement
    - First customer ship
- Implement an "Early Ship" program (customer test).
- Measure engineering on open-problem status + action plan.
- Implement service design objectives.
    - Failure rate
    - Service cost percentage
    - Remote diagnostic capability
    - Resident Q.+A. database!
- Implement cost Accounting back to ~~customer~~ product Managers for customer support and warranty costs –