

290T: The Business of Software
Homework 7 – Wind River Systems Case

1. Prepare a SWOT (strengths, weaknesses, opportunities, threats) chart for WRS top five competitors today.

	Strengths	Weaknesses	Opportunities	Threats
In house	<ul style="list-style-type: none"> • highest market share • Own all the IP • familiar with company-specific hardware • customization 	<ul style="list-style-type: none"> • significant devel & maintenance cost → not scalable • Difficult to maintain technology edge 	<ul style="list-style-type: none"> • OS as product differentiator • Already entrenched incumbent • Use linux kernel as starting point 	<ul style="list-style-type: none"> • shrinking time -to-market for embedded systems • greater complexity of embedded systems → wildly increasing costs
Green Hills	<ul style="list-style-type: none"> • Strong compiler • Support many platforms • No royalties → easier sale • Expertise in Aero/Defense 	<ul style="list-style-type: none"> • Only C/C++ • Revenue stream not royalty based 	<ul style="list-style-type: none"> • Leverage compiler to get into RTOS market • complete set of solutions (operating system, compilers, and IDE) 	<ul style="list-style-type: none"> • Open source • Input language fragmentation
QNX	<ul style="list-style-type: none"> • RTOS stability • has offered open-source development environment for 3 years, most recently on Java-based Eclipse platform • Automotive 	<ul style="list-style-type: none"> • Only support C/C++ or QNX specific languages • supports only popular processors 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • open source software • embedded processor fragmentation • With Eclipse, may have bet it all on winning a “standards war”
LynuxWorks, Red Hat, MontaVista	<ul style="list-style-type: none"> • support for wide variety of IDEs and tool chains • many optional features (fault tolerance, hot swapping) • low initial barrier to use 	<ul style="list-style-type: none"> • maintenance and support may be higher • only supports few architectures • ambiguous IP protection • difficult to develop proprietary software 	<ul style="list-style-type: none"> • customers don't have to pay for kernel • perception of free/low cost • easily portable to other linux platforms • Large developer base 	<ul style="list-style-type: none"> • embedded processor fragmentation • legal issues of using OSS
OSE	<ul style="list-style-type: none"> • networking & telcom 	<ul style="list-style-type: none"> • support only a few processors 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
Mentor Graphics (ATI)	<ul style="list-style-type: none"> • Already sell EDA SW • Digital Consumer products 	<ul style="list-style-type: none"> • Low revenue 	<ul style="list-style-type: none"> • Worldwide sales presence 	<ul style="list-style-type: none"> • Vulnerable to industry shifts
Microsoft	<ul style="list-style-type: none"> • huge pool of resources, talented staff • brand • infinite cash on hand • user interface expertise 	<ul style="list-style-type: none"> • not geared toward small memory footprint or slow processor • proprietary OS • less experience in embedded 	<ul style="list-style-type: none"> • can play catch-up once a big enough market emerges • can dump software to gain market share • extensive developer community • potential partnership reach • Moore's Law in their favor 	<ul style="list-style-type: none"> • little traction deeply embedded platforms (i.e. not PDAs, cell phones) • open source software • deepening dislike from technical community

2. In March 2001, WRS CEO Tom St. Denis calls you late one Saturday. He has a conference call with industry analysts on Monday. He wants you to draft a justification of the acquisition of ISI that addresses both customer and wall street concerns.

Leo de Luna

Rationale for merger: This merger secures Wind River's position as the market leader for embedded RTOS products. The combined engineering, professional services and sales personnel will allow Wind River to meet the needs of new customers in new geographical regions and markets; as well as continue to service the largest customer base in the embedded segment. The new product line is substantial providing product breath to our customers. The combined company can better address time-to-market demands of customers and revenue growth targets of Wall Street.

Egan Lau

- Double revenue. Add key businesses and technologies to develop more complete solutions for our customers. Establish our leadership position in the marketplace by reducing our direct competitions.
- There are areas our software can complement each other. It promotes our efficiency.
- We have more resources to deal with other competitive forces including Microsoft and Linux.

Brian Park

Justifications to wall street

- Double revenues through acquisition (wall st focused on top line growth)
- Many complementary lines and product holes are filled
- Build a substantial product line that can compete with Microsoft's windows CE and embedded offerings
- Further market dominance in embedded systems
- Defensive move to stop somebody else from acquiring ISI and becoming the leader

Justifications to customers

- One big player may lead to more standardization - easier to develop if there are less competing standards
- Fill out holes in WRS product lines
- Gain established professional service teams to help customers
- Buy from the market leader (we'll be around if you buy from us)

3. In August 2002, WRS CEO Tom St. Denis calls you late one Saturday. He has a conference call with industry analysts on Monday. He wants you to draft a justification of the company's new vertical strategy that addresses both customer and wall street concerns.

Jimmy Su

Customers' needs in the embedded system market have evolved. They have progressively more complex embedded software requirements, which are domain specific. To better serve our customers, we need to have a closer feedback loop with our customers. Our product in each domain should closely reflect the needs of customers in that domain. The vertical strategy allows us to compete better against niche players in each domain. The main advantages of niche players are their knowledge and experience in that specific market. By going vertical, WRS would be able to do the same in each of its vertical markets.

Gabriel Eirea

- 3. Customer needs
 - provide SW at every price-level and functional-level
 - more customer oriented business
- Wall street
 - (same) more customer oriented
 - each vertical unit should be profitable, more accountability

Myra Liu

Customer concerns:

- Prevent Wind River from being "a mile wide and an inch deep". Vertical markets need more comprehensive solution- Improve expertise in vertical market groups, relate better to customers, support customer's unique needs, gather better feedback from customers- More responsive to customers feedback and needs
- Easier to bundle products for specific vertical market focus

Wall Street concerns:

- Any niche competitor could easily steal business if Wind River fails to respond to more complex embedded software requirements.
- With a vertical organization, Wind River could provide solution for every price-level and functional-level.

4. In December 2002, WRS CEO Tom St. Denis calls you late one Saturday (why does it always have to be Saturday?). You did a great job on preparing the positioning last August, can you help him prepare a positioning explaining the benefits to customers (and to wall street) for the Enterprise Platform Initiative? You need to be sure to address both customer needs and wall street concerns.

Lauren Wilinson

Customer Concerns:

- Rising R&D costs: EPI addressed this by offering a platform to meet the lowest common denominator of client needs.- One-size-fits-all solution: EPI was a streamlined product offering, which many customers desired.

Wall St. Concerns:

- More predictable revenue through EPI subscriptions.
- Stability and growth story: This subscription model moves WRS away from being a single-use component vendor toward developing more long-term business relationships.

Joyojeet Pal

- Clearly, we have managed to vastly expand our client base by developing resources vertically
- Now we need to focus on the internal efficiency of the organization, with a vast array of products, we have complicated our operations and need something simpler
- Our idea of doing this actually comes from the customer, who needs more attention and systems that are scalable – exactly why the EPI is a great idea.

(St. Denis seems to call a lot at odd times – is this normal for the average CEO of a company Wind River's size)

Florian Fuchs

Q4: Enterprise Platform Initiative

Customer concerns:

- tackle the problem of the customers' R&S _software_ development cost getting out of control
- Wind River as strategic partner (long-term)
- providing comprehensive horizontal software platform for each vertical market
- professional services as substantial value to help customers to quickly adopt Wind River's platforms

Wall Street concerns:

- establish long-term customer relationships

- migration to a more predictable subscription-based revenue model
- increase average-sale price

5. Bonus: What emerging market trend most threatens WRS position as leader in RTOS for embedded systems?

Rachel Rubin

5. The trend towards using open source and Linux. More engineers are using Linux out of school and are adhering to the open source philosophy that if it is developed on that platform then it is "free". Linux has become the easiest way to program applications so is being used more frequently. It isn't going away because its kernel is modifiable and easy to slip in anything.

Ravi Shanmugam

I would argue that the emerging open-source/Linux trend represents the most serious threat to WRS's dominance. Linux represents a rapidly growing platform that 2 of the 5 competitors identified in question 1 have leveraged into embedded systems software. This threat might explain why WRS announced on Oct. 2 that it would extend its tools to support Linux.

Egan Lau

The trend that customers demand low-cost solutions on open platforms could hurt WRS most. It's getting harder to command premium pricing, or the customers will go with Linux-based solutions. For years, WRS received lots of criticism for downplaying Linux. The recent move that WRS would deliver Linux tools is to answer what customers want, but these Linux tools will likely have lower margin.

Brian Park

The emerging trend that most threatens WRS position as leader in RTOS is the emergence of even smaller OS's (tinyOS, smart dust). This trend creates the potential for even smaller OS's that may have much less functionality, but can fulfill their requirements by receiving instructions from a network.

Arkadeb Ghosal

- + the growing usage of opensource - VxWorks confess Linux as being their main competitor
- + more and more customer demand of application specific prgrams -- it seems impossible to build one large system to satisfy all
 - + emergence of WinCE (that can run all consumer devices)
 - + emergence of platform independent software paradigm that orthogonalize development and implementation

Albert Lee

The trend to provide more standardized, large scale packages, support and services caters to the larger competitors.

- could provide a stronger entryway for companies like Microsoft with immense resources
- OSs with more credibility such as Linux and Microsoft will be favored by companies looking for stability