

*An Executive White Paper On:*

**2002 GLOBAL SWITCH MARKET INTELLIGENCE SERVICE**

**VOLUME I: NORTH AMERICAN MARKET DATA REPORT**

**VOLUME II: EUROPEAN MARKET DATA REPORT**

**VOLUME III: ASIA-PACIFIC MARKET DATA REPORT**

**VOLUME IV: GLOBAL MARKET OVERVIEW**

**VOLUME V: ANALYSIS OF BUYERS & SELLERS**

**VOLUME VI: ANALYSIS OF U.S. SWITCH CONSUMPTION BY STATE**

**VOLUME VII: E-COMMERCE: OPPORTUNITIES, PITFALLS AND TRENDS FOR SWITCH MANUFACTURERS**

**VOLUME VIII: SURVEY AND ANALYSIS OF U.S. SWITCH DISTRIBUTORS**

**VOLUME IX: SURVEY AND ANALYSIS OF SWITCH CONSUMPTION BY CONTRACT MANUFACTURERS**

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*An Executive White Paper for Senior Managers  
Interested in Maximizing Growth and Profitability*

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&  
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**VENTURE DEVELOPMENT CORPORATION**

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*TECHNOLOGY MARKET RESEARCHERS AND STRATEGISTS SINCE 1971*

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This paper provides an overview of VDC's 2002 Global Switch Market Intelligence Service. Volumes I through III focus on the three major switch consuming markets of the world: North America, Europe and Asia-Pacific, respectively. Volume IV provides a deeper look into the global switch market, tying together the three worldwide regions: Americas, EMEA, and Asia-Pacific. Volume V investigates the buyers and sellers of switches, concentrating on OEM requirements and vendor market shares. The sixth volume provides United States consumption of switches, broken out by state and region. Volumes VII-IX focus on supply chain aspects of the switch market and explore e-commerce, distributors and contract manufacturing, respectively.

For more on identifying and implementing strategies to succeed in this market, VDC invites you to contact us to learn more about our products and services – visit our web site at [www.vdc-corp.com](http://www.vdc-corp.com)

## MARKET OVERVIEW

The global switch market has grown by over \$800 million since 1991 reaching \$3,325.0 million in 2001. Over this period, overall revenues from worldwide switch shipments for consumption grew at a compound annual growth rate (CAGR) of 2.8%. However, this growth rate has not been constant, as there has been little total growth in the second half of the decade.

Worldwide consumption of switches is forecast to reach \$3,748.0 million in 2006, growing at a compound annual rate of 2.4% over the forecast period (see Exhibit 1). VDC believes that the global switch market is at the end of a retraction period, largely due to demand slowly returning to vertical markets in the United States. After a period of flat growth, a global rebound should occur before consumption growth rates level off to historic levels.

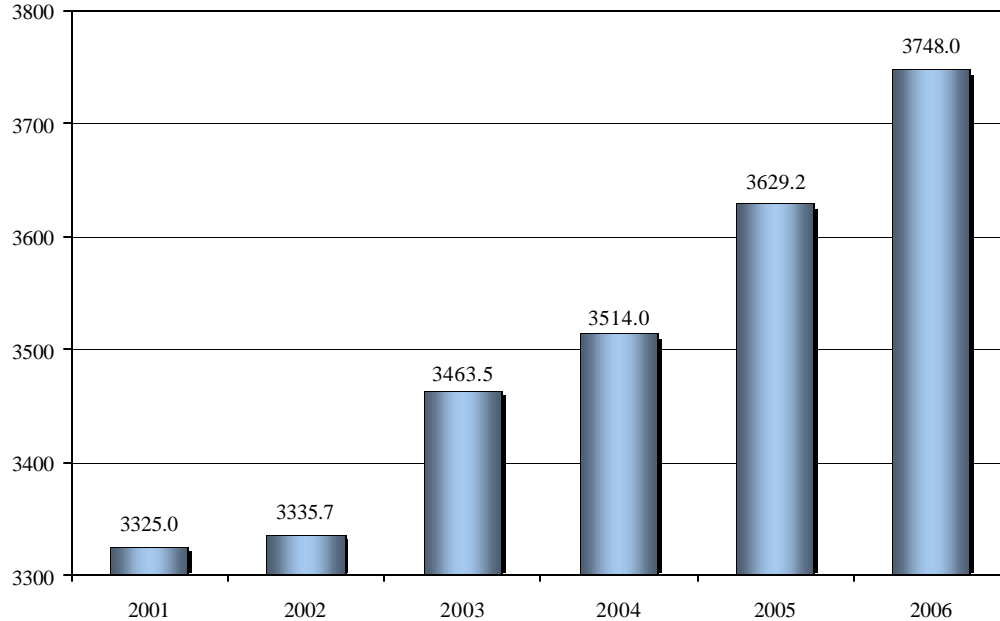
In general, this is what VDC expects for the overall global switch market during the next five years:

- An adjustment period of little or no growth will continue until the end of 2002 as simultaneous recessions afflicting major countries in the world reduce the demand for many switches consumed by various vertical applications.
- A recovery period will ensue as demand for switches roars back in the United States, a country not recently accustomed to slow growth. During this time, growth in Europe will resume, but at a steady unspectacular rate.
- To meet the growing demand in other regions, some vendors in the Asia-Pacific region may again flood the market with low cost components. This competitive practice will ultimately lead to another price decline and reduced overall revenue for the region before the cyclical nature of the industry levels out demand by the end of the forecast period.

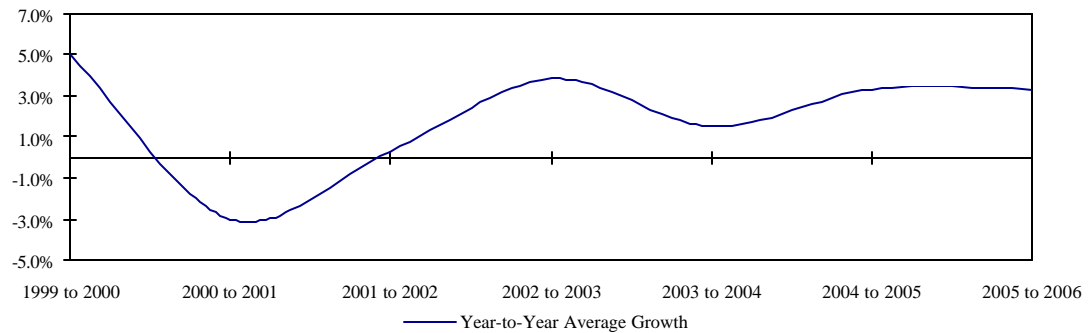
Economic influences have led to demand swings in several large vertical markets, creating over-supplies where shortages recently existed. Increased global competition among participants has affected many vendors' bottom lines, and changed the look of the market. Market participants seek new ways to cut costs and differentiate themselves from the competition. Changes within several vertical application segments have led to the displacement of some switch types by other switch types, and other technologies.

Exhibit 1  
Forecast Year-to-Year Revenue Growth of Global Switch Consumption

**A) Dollar Volume (In Millions)**



**B) Forecast Year-to-Year Revenue (Percent Average Growth, Year Over Year)**



**MARKET SEGMENTATION AND GROWTH**

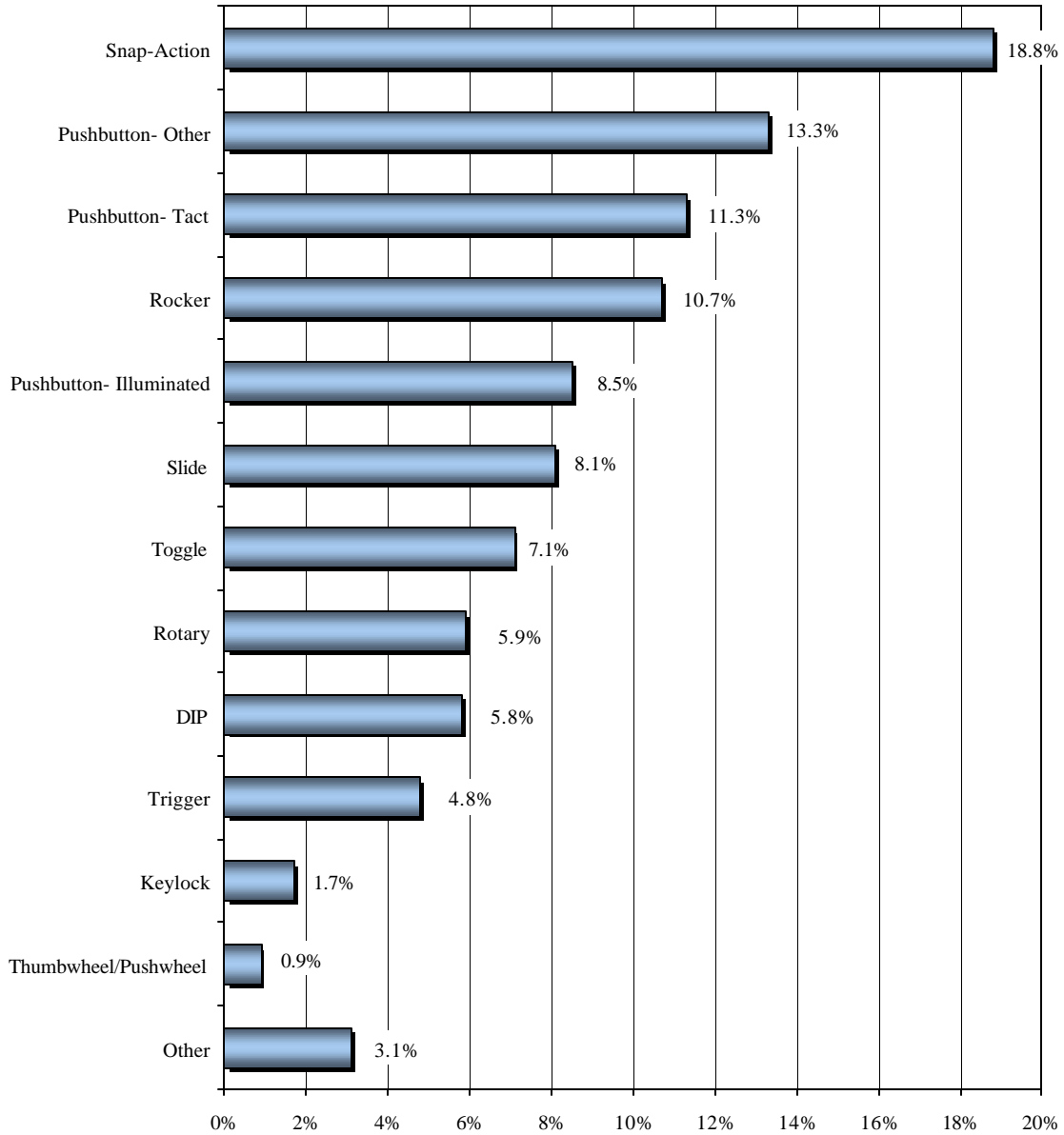
**Forecast Consumption Growth by Product Type and Consuming Industry/Application**

Product Types – Exhibit 2 shows the share of global switch consumption by switch type.

Snap-action switches make up the largest share of the overall switch market, but this share will decrease slightly over the forecast period. Non-lighted, tactile pushbutton (tact switches) and slide switches are expected to be the fastest growing switch types in terms of increased consumption. Further segmentation and discussion of these and other switch types' shares, trends and forecast growth within each region can be found in volumes I-IV of the 2002 Global Switch Market Intelligence Service.

Exhibit 2  
Global Switch Consumption by Product Type  
(Percent of Dollar Volume)

2001 Total: \$3,325.0 Million



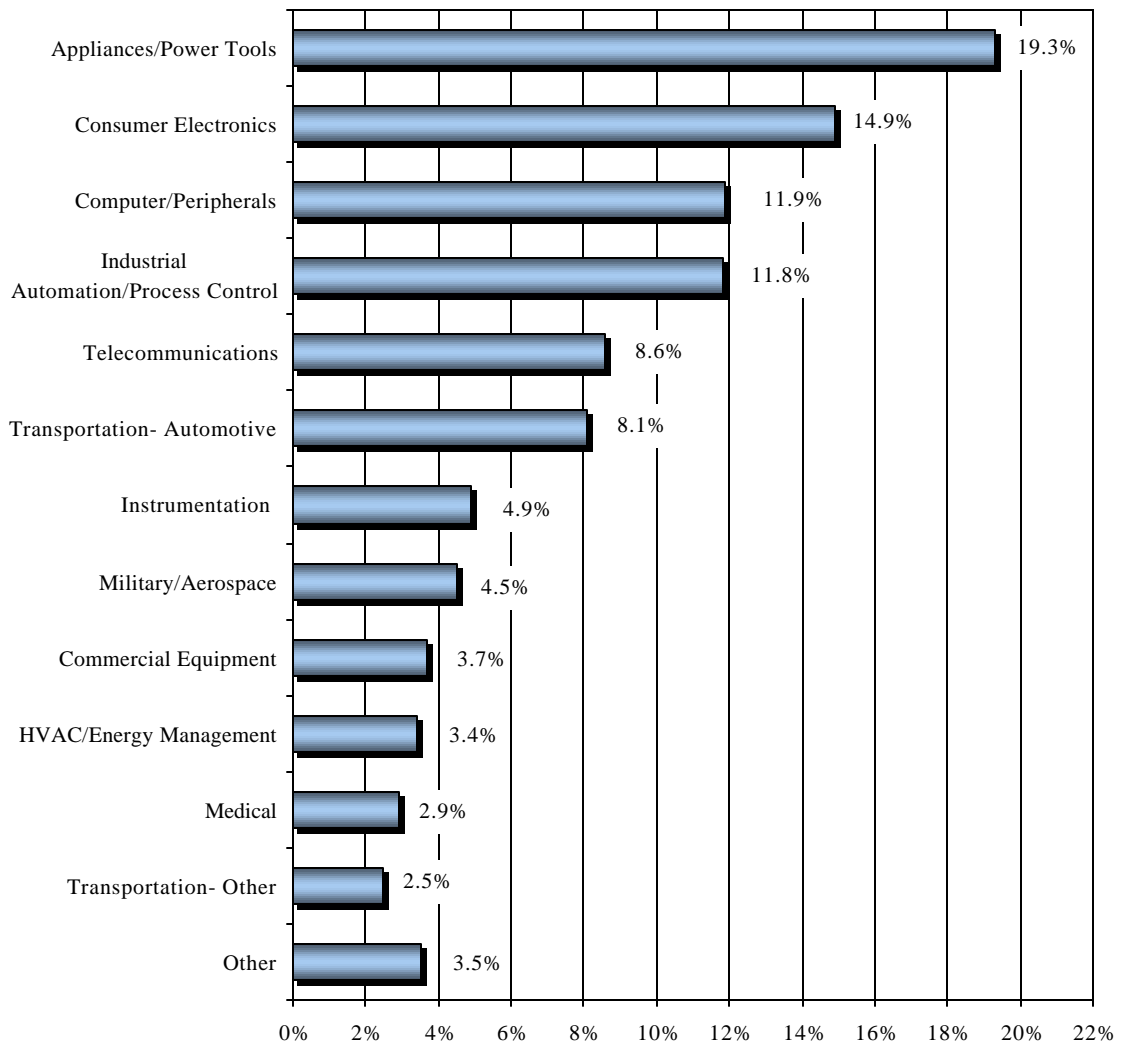
Industry/Application Markets – Global switch consumption for 2001, by industry and application, is illustrated in Exhibit 3. The appliances and power tools application segment is the largest global consumer of switches, with a 19.3% market share. The fastest growing switch consuming application through 2006 is forecast to be consumer electronics, but its high growth rate will not be enough to overcome appliance and power tool applications for the largest market share.

Notable developments include:

- Although the appliance market is nearing saturation in some areas, forecast demand for switches used in power tools and other home improvement applications throughout the world will help the appliances and power tools market segment to grow at an above average rate through 2006.
- Facing competition and falling component prices, consumption of switches used in computers and peripheral applications are expected to grow at only 1.4% globally during the forecast period.
- Consumption of switches for telecommunications applications is expected to bounce back over the forecast period as new service and product offerings take advantage of 2.5 and 3G technology. This growth, however, will not be as great as it was in the late 1990s.

Exhibit 3  
Global Switch Consumption by Industry/Application  
(Percent of Dollar Volume)

2001 Total: \$3325.0 Million



## The Global Switch Market

The four volumes of the market data reports individually cover this market as follows:

Volume I: North American Market Report – This report covers those products consumed within the physical boundaries of North America. For the purposes of clarity within this report, VDC defines North America as including The United States of America, Canada and Mexico.

Volume II: European Market Report – This report covers switch shipments by manufacturers to European markets. This includes those produced in Europe for European consumption, and also imports into Europe. VDC defines the European market as studied in this report as including Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Monaco, The Netherlands, Norway, Portugal, Scotland, Spain, Sweden, Switzerland, Turkey, and The United Kingdom.

This study does not provide focus on those switch shipments that were produced in Russia or Eastern Europe (including the Commonwealth of Independent States – CIS) and consumed in these markets. Production of switches in these regions consumed in other markets was covered, as was consumption in these regions of switches produced elsewhere.

Volume III: Asia-Pacific Market Report – This report covers switch shipments by all manufacturers to Asia-Pacific markets, including those produced in Asia-Pacific for Asia-Pacific consumption, and imports into Asia-Pacific. VDC focused its effort on analyzing switch consumption in Australia, China (incl. Hong Kong), India, Indonesia, Japan, Malaysia, New Zealand, Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam.

Volume IV: Global Market Overview – This report covers those products consumed within the three main regions of:

- The Americas: (North, South, Central America)
- EMEA: (Europe, Middle East, Africa)
- Asia-Pacific: (Japan, Asia, Oceania)

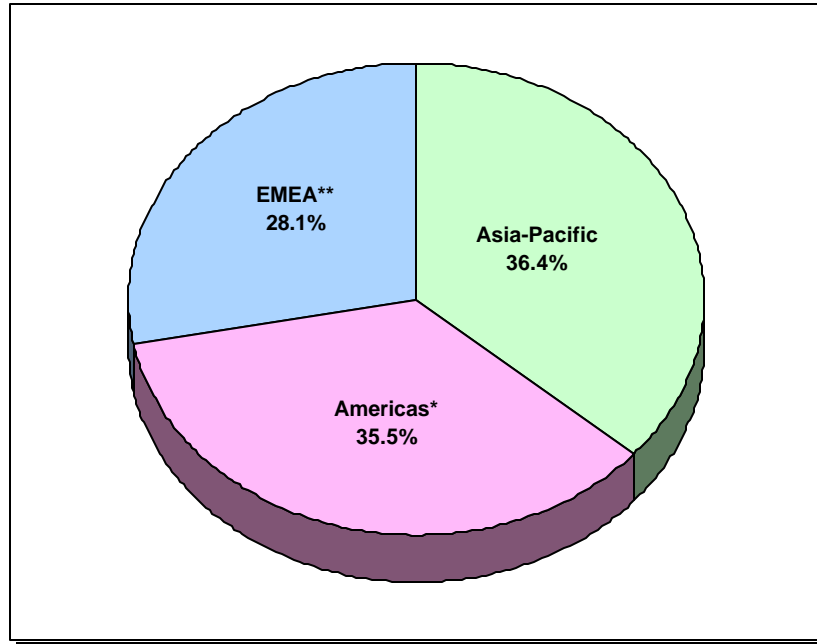
Volume VI: Analysis of US Consumption by State – This report covers switch consumption by state and the following regions: Northeast, Mid-Atlantic, Southeast, Great Lakes, Southwest, North Central, Mountain and Pacific.

### Regional Segmentation and Forecast Growth Rates for Switch Consumption

Regional market segmentation of the global switch market is illustrated in Exhibit 4. The Americas' share of worldwide switch consumption will continue to increase at the expense of other regions. Asia-Pacific's share is expected to increase after declining since 1996. After a period of steadily increasing market share (through 2001), the EMEA region's share will drop through 2006, as its slow growth will not be enough to keep up with other regions. The switch product types and vertical market segments affected by growth and decline in switch consumption are identified in each region's respective market chapter.

Exhibit 4  
Global Switch Consumption by Region  
(Percent of Dollar Volume)

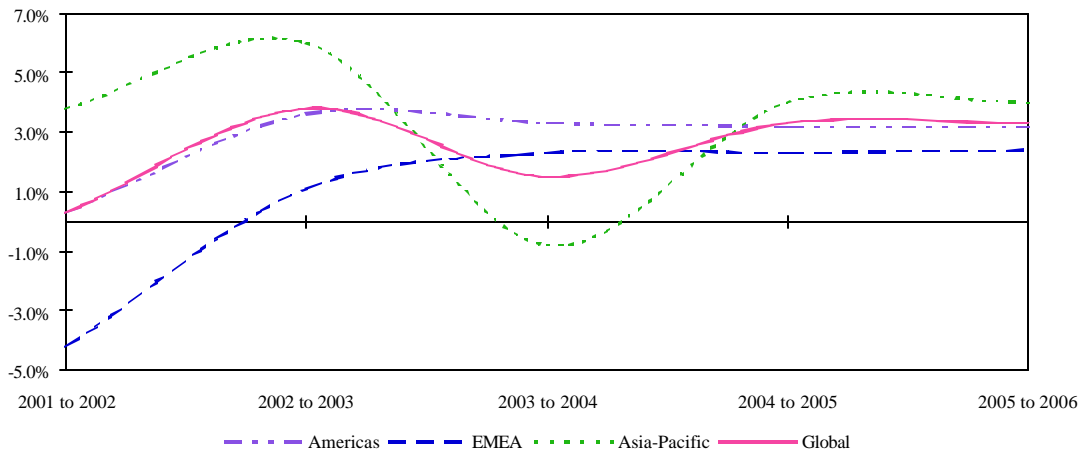
2001 Total: \$3,325.0 Million



Regional market growth in switch consumption is illustrated in Exhibit 5. Although each region's growth trend line is similar to that of the overall global switch revenue growth trend line, each region has its own story:

- A recovery in demand for switches is expected for the Americas after a relatively flat 2002. Switch consumption is expected to rebound and grow at 3.6% during 2003. After this time, demand will level out and finish the forecast period growing at a healthy 3.2%.
- The EMEA (Europe, the Middle East and Africa) region's hard times lagged behind the United States and will not improve until at least 2003. However, recovery in this region will not occur in a "bounce-back" fashion, but rather a slowly increasing growth rate.
- Switch consumption in the Asia-Pacific region will continue to be volatile. Cyclical oversupply will cause the market to dip dramatically in 2003/2004, before returning to a normal, level growth rate.

Exhibit 5  
Forecast Year –to-Year Revenue Growth of Global Switch Consumption by Region



## TRENDS IN SWITCH TECHNOLOGY

### Competing Technologies

**Software applications, sensors and electronic controls**—The trend to new or alternative technologies, which perform the switching function in place of currently popular switches, continues as OEMs seek higher reliability and long-lasting components. Devices with optical, magnetic, and other low or non-contact technologies are gaining in popularity. A number of OEMs we spoke with claim to expect a shift to electronic switching mechanisms in a variety of applications.

**Touch Screen Displays And Membrane Switch Pads**—Other alternative technologies that are displacing switch usage include touch screen displays and switch pads (principally membrane types). Touch-screen displays employ a range of hardware technologies, such as capacitive, which allows a very light touch, surface acoustic wave, which detects how hard the user presses, and scanning infrared, which is sensitive to bright light.

### No Imminent Threat to EM Switches Likely

The switch market is a very mature market. Newer emerging technologies are, and will continue to be, a threat to market share for electromechanical switching. The demand for traditional EM switches, however, is not going to die out, nor is it likely these switches will ever be fully replaced. Basic tenets of cost, design, and, in some cases, functionality prohibit any kind of radical, or blanket replacement in most cases.

## INFLUENCES ON THE OVERALL INDUSTRY

Several recent and ongoing trends that continue to shape the switch market include:

- Vendor consolidations, streamlining of operations, and enhancing offerings
- Distributor influences and offerings
- The employment of contract manufacturing



- Adoption of Internet and Web-based technologies and tools
- OEMs stepping up price pressures on suppliers
- More attention paid to quality and scope of comprehensive customer service

### **OEM and Supplier-Oriented Influences**

Volume V: Analysis of Buyers and Sellers - Certain application market segments are approaching market saturation, and competition in these areas is expected to increase. Vendors serving these markets will be looking for additional means to sustain revenue growth, including adding new product lines or technologies, and pursuing new application segments. Vendors also will become more competitive in these markets via the formation of new marketing strategies and initiatives, and faster introduction of new technology and products to stay ahead of the competition. The fifth volume of the 2002 Global Switch Market Intelligence Service explores these issues, as well as OEM requirements, vendor market share and profiles of leading switch vendors.

In an effort to cut costs, some OEMs are concentrating on their core competencies, such as R&D or marketing, and are outsourcing their manufacturing to contract manufacturers. This shift means that switch vendors must learn how to serve two customers: the designing company and a separate manufacturer.

Vendors are now working more closely with OEMs who are developing new products. This allows for the switch vendors and OEMs to better implement design parameters into the switches used for a given product. Not only does this allow the switches to be better physically integrated into the design, but it also allows the vendor to provide technical advice to the OEM on how to improve switch performance and, ultimately, enhance the product. There are benefits for both parties: the OEM gets a well designed product via better component integration, and the vendor comes closer to receiving a long standing switch contract.

As some switch types become more like commodities, product differentiation and other traditional competitive factors have lost their potency. Therefore, quality and level of service will become more important to OEMs when choosing a supplier of such components.

### **Supply Chain and Channel-Oriented Influences**

Volume VII: E-Commerce: Opportunities, Pitfalls and Trends for Switch Manufacturers - The Internet has grown into a proven tool of necessity for every entity up and down the supply chain; and its potential is still far from realized. Electronic purchasing, either EDI or web-based, can reduce the costs of purchasing switches, increasing efficiency on both sides. Presently, the Internet is an invaluable tool for buyers searching for information about vendors, distributors, and products. It is also an excellent instrument for commerce in many cases. In the future, it will prove a major influence on how business is conducted on all levels.

Despite over 40% of OEMs saying that they plan to purchase switches online in 2005, few vendors are prepared for this. The Internet still may allow switch vendors to cut costs while increasing services, to sell to a global customer base more easily and to effectively market their products and business, but e-commerce is a large risk many companies are not in the position to take right now. As the economy improves, more and more vendors will more seriously consider e-commerce initiatives, but until then, few vendors are willing to make that investment.

In the meantime, however, many switch vendors are updating their Web presence. It is becoming increasingly important for a vendor to maintain a good amount of product data and information on its site, as OEMs are increasingly turning to the Web when looking for suppliers. In lean economic times, it is essential that vendors maximize every opportunity they have to impress and help a customer, and the maintenance of a high quality Web site is one of the best ways to do this.

Volume VIII: Survey and Analysis of US Distributors – The top ten distributors now account for a greater percentage of sales than ever before. This increase in market share is more due to smaller distributors exiting the market (either through failing or changing businesses, to contract manufacturing, for example) than through consolidation. While most of this decline was a result of a terrible year for passive components, a decline in demand for electromechanical components like switches also hurt distributors. Further exacerbating this drop is the shift in the switch market away from distributors and towards direct sales to OEMs.

Distributors make up a significant portion of the United States switch market, accounting for nearly \$450 million of the estimated \$1,084 million total market in 2001. Since VDC's last reporting in 1998, the distributor share of the market has remained steady (41.1% in 1998, compared to a projected 41.2% in 2001). Growth in distributor share, however, is anticipated, attributed to the distributors' expertise in inventory control as well as their increasing service portfolio.

Coinciding with the anticipated increase in shipments to distributors is the rise of value added services they offer. These services, from on-line inventory forecasting to design support, are becoming an essential part of distributors' business, to the point that some distributors are moving towards a fee-for-service model. More than half of some distributors' revenue is generated by value added services and this percentage should increase over the next five years.

E-commerce and web-based marketing have also grown in importance for distributors. With the Internet fast becoming the method of choice for finding company and product information, it is becoming crucial for distributors to provide as much as possible, including e-commerce features, in an easy to use and comprehensive site. In addition, distributors are using the Internet to find information on current and potential vendors and their products.

Volume IX: Survey and Analysis of Contract Manufacturing - Direct sales to OEMs continue to dominate switch sales, accounting for a little more than one half of all switch sales worldwide. Although their impact has yet to be fully realized, contract manufacturers are becoming a more important consuming segment, as some purchase in volumes equivalent to the largest OEMs.

Outsourcing manufacture to EMS providers still offer considerable cost savings to OEMs, but many large contract manufacturers have grown too large too quickly. As the drop in the electronics market was a lot steeper and longer lasting than many anticipated, EMS providers expanded at a very inopportune time and now are facing unused capacity. In addition, many contract manufacturers must now cope with the same problems that large OEMs were trying to avoid initially, including demand for logistic capabilities, design and inventory services, limiting pricing contracts and restrictive return policies.

With OEMs looking to cut costs and outsource low-margin elements of their business, EMS providers have grown substantially in recent years and now make up a significant portion of the switch market. Over the next five years, sales to contract manufacturers is expected to increase, but not at the high rate seen over the previous five, and certainly not as high as some forecasted in 2000. The growth rate will be brought down for a variety of reasons. First, outsourcing adds an extra tier of inventory, creating more of an inventory overhang when an OEM decreases its production. Also, most contract manufacturers' clients are in high-tech industries with short product life cycles. These industries posted incredibly good growth rates in good times, but these rates fell hard in bad times. With very low margins (3-5%), EMS providers want stability and predictability, as it allows them to purchase parts cheaper and improve their manufacturing process. As a result, VDC expects EMS providers to more carefully select their projects and OEM customers in coming years, possibly bringing their overall growth rate down.

### **Economic Influences**

America's Slowdown – After an unprecedented decade of growth, the desired “soft landing” of the United States' economy hit sooner and harder than many expected. The widespread reduction in spending across the business landscape decreased demand for switches used in several relevant and inter-related applications. Consumers' wealth fell with overvalued technology stocks, and the expected high demand of goods incorporating switches evaporated. Global effects of this slowdown were numerous:

- Extended lead times for switches created an oversupply that proved unmanageable when demand for the switch-consuming products dropped before orders slowed.
- Expecting continued growth, many switch manufacturers expanded their production facilities (either internally or through acquisition), and when consumption decreased sharply, many vendors were left holding the bill.
- The intensity of price-based competition has escalated as demand remains flat. Shortened lead times have allowed OEMS to become increasingly choosy, enabling them to shop around for vendors with the best price and best service offering.

Asia-Pacific Economies – When strong growth returned in 1999 and 2000, the worst of the regional economic crises appeared to be over. Unfortunately, the continued poor performance of Japan's economy, coupled with the slowdown of the United States' economy have pushed some countries, particularly those dependent on electronic components, back into recession. China's high growth will lead the region in the foreseeable future, changing the landscape of the region's economy.

Regional Trade – While global trade (inter-regional) levels are at unprecedented levels, there is a noticeable movement toward intra-regional trade.

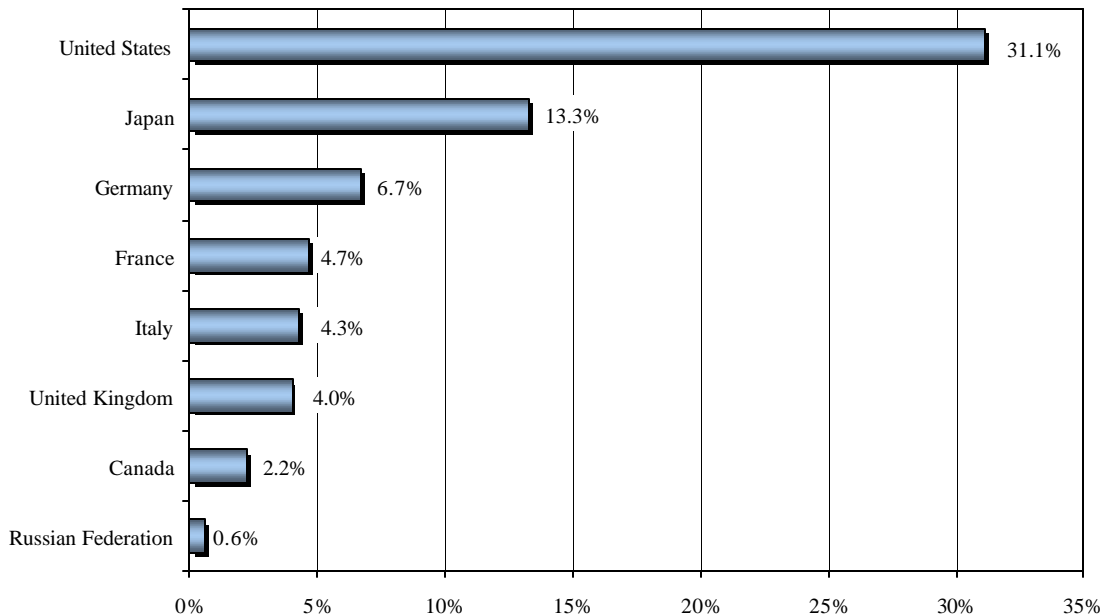
By lessening tariffs and trade restrictions among the members of a trade group (e.g., NAFTA, EU), and imposing, or maintaining, higher restrictions for non-members, product or component production may seek the lowest cost country within the region rather than locating overseas. Examples of this include Mexico's increasing market share and the shift to lower cost countries of the European Union, like Italy and Portugal.

Trends in the G8 – Exhibit 6 illustrates switch consumption by the eight member nations constituting the G8. Surpassing Japan in the early 90s, the US is expected to maintain the leading share of this segment through 2006, with greater than twice the share of any other G8 country. G8 countries will continue to account for nearly 70% of the global switch market through the forecast period.

VDC is monitoring the slight shift in switch consumption from some G8 nations to non-G8 countries (or less industrialized nations, regardless of G8 membership) to determine if this is a trend. Variations on this theme can be seen in all three major global regions:

- Although US share continues to grow (attributed to increases in design, production and consumption of high-tech goods), the forecast growth rate for switch consumption in Mexico is nearly twice that of the United States.
- Growth in switch consumption rates for the leading European switch consuming markets (France, Germany, Italy, UK) may be outstripped by Spain, Portugal, Greece and possibly other “lower wage” nations in the region. Of course, the potential for high growth rates of component consumption is obvious for G8 newcomer, Russia, but the question is when this will likely take place.
- Japan’s decrease in world share (down 3.0% from 1999) is partially explained by its sliding economy, and by an increase in OEMs moving (switch consuming) production facilities offshore.

Exhibit 6  
Share of Global Switch Market Consumption for G8 Member Countries  
(Percent of Dollar Volume)



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**STRATEGIES AND RECOMMENDATIONS**

Global trends are important, but regional differences may be masked. The first three volumes of VDC's Global Switch Market Intelligence Service provide a closer look at each part of the world, providing insight on how to cater production to each region.

Switch vendors need to perform an in-depth analysis of their operations and planning with respect to their product offerings and target markets. After which, vendors should come to a decision whether to expand along product, market, geographic or other lines; or to shore up defenses and strengthen core competencies and proven areas of practice.

VDC suggests that vendors closely examine their marketing practices and strategies. We recommend that vendors certainly evaluate, and update where necessary, their production methods, sales and support programs, product development practices and methods of gaining feedback from customers on the firm and its products.

This is the time to focus on internal activities – meaning not so much on expansion through sales and new application targeting, but improvements to infrastructure, technology, communications with distributors, relations with OEM and CEM customers, and other critical planning strategies. This must be in place so that one can truly be ready for those gem opportunities for expansion, acquisition and revenue growth arenas that will again begin to surface, presumably by mid 2003.

VDC highly recommends that suppliers conduct ongoing, very close examination of market and economic activity and trends.

As more industry analysts and market watchers are coming to the conclusion that global economies are not to fully recover as soon as previously expected, suppliers need to realize that near and long-term business strategies should be focused on slow economic recovery scenarios; and based on these scenarios, vendors need to make informed, intelligent and sometimes tough decisions over the coming months.

## GOING FORWARD

The changing economy is significantly affecting the global switch marketplace. These effects may markedly alter the way industry participants act and operate in and among themselves for a long time to come. The effects upon the vendor community, OEMs, EMS providers, and distributors will range from the sublime to an all-out alteration of normal business practices, that may change the face of this industry forever. Some of the more significant results we can expect to see in the short term, and long term may be summarized:

- Vendors may be shouldering the brunt of the slowdown
- OEMs gain more power, authority, share of sales, and increase bargaining position
- E-commerce will prove to be a necessity, not an option
- Distributors maintain importance and influence on a global scale – but are put to work
- Switch sales to contract manufacturers to retract in the short term

Some examples of what VDC has uncovered:

- More than \$2 billion in global switch sales will go to OEMs in 2006.
- Share of worldwide switch sales to distributors will decline 4% by 2006.
- More distributors will be attaining revenues from offering value-adding services such as inventory bonding and management, CRM based communications tools and global supply chain management strategies.
- Sales to contract manufacturers now account for 8% of global switch shipments.
- The top 10 Global Switch Vendors:
  - Honeywell
  - Alps
  - ITT Cannon/C&K
  - NKK
  - Omron
  - EAO
  - Eaton
  - Idec Izumi
  - Tyco
  - SIBER Group
- Top switch vendors by region:

<u>North America</u>	<u>Europe</u>	<u>Asia-Pacific</u>
Honeywell	ITT Cannon/C&K	Alps
ITT Cannon/C&K	SIBER Group	NKK
Pollak	Honeywell	Omron
Eaton	Marquardt	Idec Izumi
Korry	EAO	Mitsumi

Since the second half of 2000, we have been moving through a trend of declining growth in the demand for passive components (switches among them). We've also seen that the market's perception of this decline is that the worse is behind us, and now it's time to recover, regroup and reassess new strategies for achieving growth with limited resources at hand and depressed demand for the short term.

## CONTACT US

For more on identifying and implementing strategies to succeed in this market, VDC invites you to continue the **2002 Global Switch Market Intelligence Service** with:

- Volume V      Analysis of Buyers and Sellers
- Volume VI     Analysis of US Switch Consumption by State
- Volume VII    E-Commerce: Opportunities, Pitfalls and Trends for Switch Manufacturers
- Volume VIII   Survey and Analysis of US Switch Distributors
- Volume IX     Survey and Analysis of Switch Consumption by Contract Manufacturers

**VDC's Electronic Components Business Group also has a number of recent, and upcoming market research reports available, including:**

- 2003 Global Relay Market Intelligence Service
- The North American Market for Keyboards & Keypads (2002)
- MEMS and MicroStructures Technology (MST): An Application and Market Evaluation (2002)
- The Global Market for Uninterruptible Power Supplies (2002)
- The Global Market for Power Supply and Power Management Integrated Circuits (2002)
- International Markets for Power Line Surge Suppressors (2002)
- The U.S. Market for Pressure Switches (2001)
- The Global Market for Motor Control Integrated Circuits (2001)
- Markets and Applications for AC/DC Switching Power Supplies and DC/DC Converters (2001)
- US Merchant Market for Transformers in the Electronics Industry (2000)
- The US Market for Proximity Photoelectric and Linear Displacement Sensors (2000)
- The World Market for Industrial Electronic Temperature Controllers (2000)

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For further information and pricing on "2002 Global Switch Market Intelligence Service", or to discuss any of our reports or services, please contact: John A. Gordon, Senior Analyst, [jgordon@vdc-corp.com](mailto:jgordon@vdc-corp.com) or Marc Regberg, Senior Vice President, [msr@vdc-corp.com](mailto:msr@vdc-corp.com)

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