



**Techtronix Innovations:
data-driven insights and
recommendation for
strategic growth.**

**Presented by Sylvanus
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Key Points of Focus



- ☐ **Business Background**
- ☐ **Business Challenges and Project Goals**
- ☐ **Analysis addressing key business pain points**
- ☐ **Key Insights Analysis**
- ☐ **Recommendations**
- ☐ **Conclusion**

Business Overview



Techtronix Innovations is a frontline player in the microchip and robotics industry. With a competitive edge of diverse portfolio, the company serves various markets, including consumer electronics, industrial, and automotive sectors, across the USA, Germany, China, Japan, and South Korea.

Business Challenges and Project Goals



Challenges:

- ❖ **Demand Unpredictability:** Difficulty in forecasting customer demand, leading to stockouts or overproduction.
- ❖ **Inventory Inefficiencies:** Issues with optimizing inventory levels, causing excess stock or shortages.
- ❖ **Market Opportunity Identification:** Struggles to pinpoint profitable markets, limiting strategic expansion.

Analysis Objective:

- **Sales Trends:** Identify top and low performers across products, sectors, and regions.
- **Customer Insights:** Analyse purchase patterns and key revenue sectors.
- **Inventory Alignment:** Minimise mismatches between demand and inventory.
- **Profitability:** Highlight high-margin products and cost-saving opportunities.
- **Market Growth:** Explore untapped regions and sectors for expansion.



Key analysis addressing business pain points.

Pain Points:

Key Insights Analysis:

☐ Demand Unpredictability

- Trend of total revenue by month.
- Total quantity sold: by country, and customer sector.
- Revenue month-to-date.

☐ Inventory Inefficiencies

- High-Cost Products and Top Products profitability.
- Average profit by product category.
- Average quantities sold by product category.
- Quantities sold, total revenue by customer sector.

☐ Market Opportunity Identification for Expansion

- Total revenue by product category and region
- Total revenue by country, products, customer sector, and region.
- Total profit by region.

Key Insights Analysis – Demand Predictability

Total Revenue by Month



Trend of total revenue by month

Revenue peaks in April and December, likely driven by seasonal demand, reveal the need to enhance production capacity during these periods to meet customer needs. This also highlights an opportunity to improve marketing efforts and align inventory strategies to leverage demand surges.

Revenue MTD

ProductName	Q1	Q2	Q3	Q4	Total
Product_1246	-108%	-41%	-2%	-89%	-39%
Product_1229	-33%	7%	-111%	-55%	-31%
Product_1307	-19%	-122%	-42%	9%	-29%
Product_1191	70%	-78%	-68%	-46%	-24%
Product_1255	-10%	37%	-48%	-95%	-20%
Product_1187	-67%	-205%	64%	5%	-14%
Total	19%	21%	23%	21%	21%

Revenue month-to-date

Six products - 1246, 1229, 1307, 1191, 1255, 1187 show consistent negative contribution (-14% to -39%) indicating no demand for them, and the need to reduce production to avoid overstocking and inventory holding costs. While products 1013, 1481, and 1178 see growth of 54% to 59% month-on-month, highlighting the opportunity to focus resources on these high-demanding products.

Key Insights Analysis – Demand Predictability Cont'd

Country	No_Order ▼	Total Revenue	Total Qty Sold
USA	2040	\$52,149,698	102198
China	2015	\$51,019,012	100342
Japan	2012	\$50,212,839	100093
Germany	1981	\$49,765,026	100982
South Korea	1952	\$49,233,908	96900
Total	10000	\$252,380,483	500515

USA and China lead in quantities sold, reflecting strong demand and market stability in those countries. In contrast, Germany and South Korea are the least sales contributing locations. There is there need to investigate factors such as customer preferences, market competition, or distribution inefficiencies in Germany and South Korea to identify barriers to demand.

CustomerSector	No_Order ▼	Total Revenue	Total Qty Sold
Industrial	3510	\$89,372,466	176452
Consumer Electronics	3336	\$84,184,034	167083
Automotive	3154	\$78,823,983	156980
Total	10000	\$252,380,483	500515

Industrial and Consumer Electronics sectors drive the highest revenue, reflecting a considerable high demand and predictability. In contrast, the Automotive sector lags requiring analysis of factors like such as sector relevance, customer preferences, or market competition to address demand challenges.

Key Insights Analysis – Inventory Management

Avg Profit by Product Category



Against the fluctuating performance of Robotics and Sensor categories, Microchip stands out with the highest average profit by product category, consistently showing incremental profit growth from 4.7k to 6.7k. This indicates stable demand, profitability, suggesting that Microchip should be prioritised in inventory. By ensuring sufficient stock and production for Microchip will prevent potential stockouts and allow the organisation to continue leverage its strong performance.

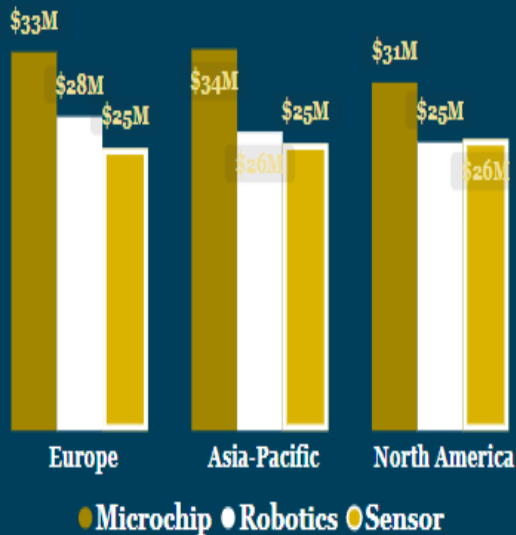
Top 3 Most Profitable Products



Product 1315 stands out as the most profitable product, even with the 3rd highest production cost, while Product 1100, despite being the 3rd most profitable, bears the highest production cost. Ensuring adequate inventory for Product 1315 is essential to sustain profitability and protect market share, while optimising production costs for Product 1100 can help manage cost margins and bring about competitive positioning.

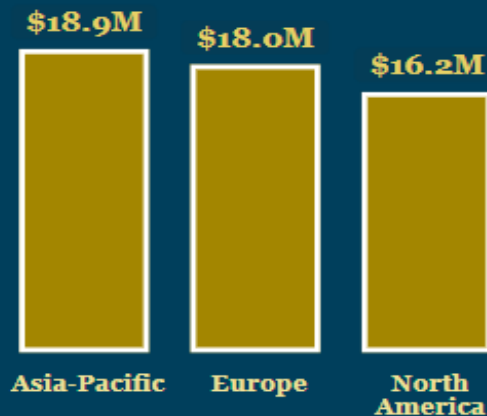
Key Insights Analysis – Expansion Opportunity

Total Revenue by Product Category and Region



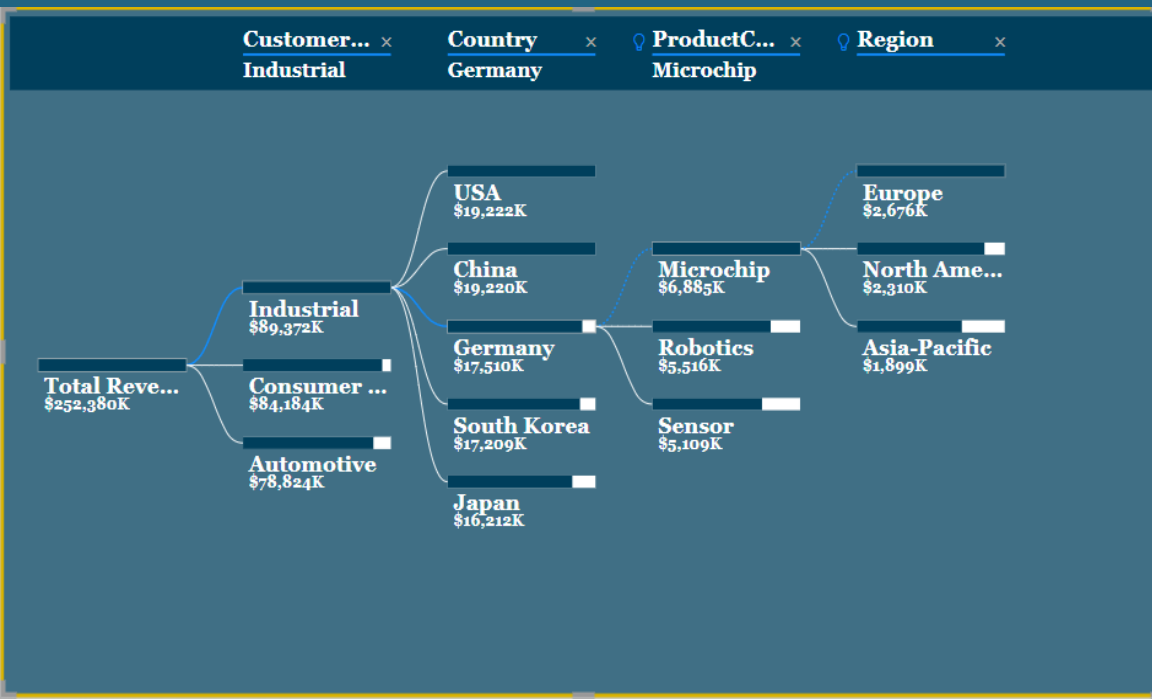
Microchip product category is contributing the highest revenue across region; which provides a basis for expansion. To maintain market leadership, it is critical to monitor competitor activities closely. Competitors in the microchip space, particularly in Asia-Pacific and Europe, are likely targeting similar markets due to the high profitability. Conversely, the Sensor category underperforms in Europe and Asia-Pacific but performs slightly better in North America, indicating regional challenges like, weak positioning, or strong competition.

Total Profit by Region



Asia Pacific emerges as the highest profit-generating region, and Europe, the second-most profitable. This suggests strong market demand and operational success; therefore, presents strong opportunities for regional expansion. North America's underperformance highlights areas for improvement. A detailed analysis of market trends, customer preferences, and competitor positioning is required to identify and address these challenges.

Key Insights Analysis – Expansion Opportunity Cont'd



- The Automotive & Industrial sectors are leading revenue generators in the USA and China, reflecting strong demand and a robust market. This suggests need for further penetration by introducing complementary products or expanding customer reach within these sectors.

- In Japan, Consumer Electronics sector dominates, driven by a tech-savvy market and high demand for cutting-edge products. Expanding product lines or investing in localised innovations tailored to Japan's tech-savvy consumers can further capture market share.
- However, South Korea ranks second to last in revenue contribution, signalling a potential market gap or barriers to entry. Addressing these issues would require detailed competitor analysis or assessing consumer preferences.

Recommendation

Business Priorities

Recommendation:

❑ Demand Predictability:

1. Seasonal Demand
2. Product Performance
3. Regional Demand
4. Sector Demand

- Scale up production during April and December to meet seasonal demand surges. Strengthen marketing and inventory strategies for peak periods.
- Investigate barriers in Germany and South Korea (e.g., preferences, competition) and address inefficiencies to boost sales in these regions.
- Reduce production of underperforming products (1246, 1229, 1307, etc.) to avoid overstocking and reallocate resources to high-growth products.
- Analyse factors affecting Automotive sector performance and prioritize Industrial and Consumer Electronics for consistent demand and revenue.

❑ Inventory Management

1. Microchip Focus
2. High-Cost Products

- Prioritise Microchip production and inventory, ensuring adequate stock to prevent shortages and leverage its consistent profitability.
- Maintain inventory for Product 1315 to protect its profitability and optimise production costs for Product 1100 to improve margins.

Recommendation

Business Priorities

Recommendation:

❑ Expansion:

1. Microchip Leadership
2. Regional Opportunities
3. Sector Opportunities
4. Japan & South Korea

- Expand Microchip presence in Europe and Asia-Pacific, monitoring competitors and addressing Sensor's weak regional performance.
- Expand operations in high profit region such as; Asia-Pacific and Europe to capitalize on high profitability. Address North America's underperformance with targeted plans.
- Deepen market reach in Automotive & Industrial sectors in the USA and China. Introduce complementary products to capture additional demand.
- Invest and Innovate for Japan's Consumer Electronics market and address South Korea's low revenue through strategic market entry and partnerships.

Conclusion

To sustain growth and pursue market expansion, the Techtronix Innovation must leverage its strengths, such as Microchip's performance and Asia-Pacific's profitability, while addressing challenges like Sensor's regional underperformance and weak demand in Germany and South Korea. By aligning inventory management, optimising product focus, and adapting strategies to meet regional and sector-specific needs, the company can enhance its market share, profitability, and competitive edge globally.
