

## **Introduction**

Machine Manufacturing Company is a new venture established to promote a new form of flexible manufacturing system, the FlexMachine.

The company's objective is to establish a world-wide presence through focussing upon an initial penetration of major target markets.

This overview of the business plan introduces this new product, describes the manufacturing of the systems and the methods the company intends to market and distribute the product to its customers. In addition, the risks facing the business will be illustrated, including the steps being taken to minimise any negative impact. Finally, a summary will integrate the aspects of this business case into a clear corporate intent.

## **Product**

The FlexMachine is a self-contained, automated machine system for manufacturing small electronic and electrical devices. The system allows the construction of items built to individual orders, transforming bins of components into shipments of products ready for collection by a courier.

### *Purpose*

The FlexMachine system automates the following operations:

- A silicon board is taken as a base for the new electronic device. The system is capable of handling boards with up to four layers.
- The PCBs are placed onto the board, with a maximum of approximately 50-60 PCB's per board, depending upon individual PCB size and board layout.
- The PCBs are soldered onto the board.
- The completed board is placed into a plastic case, completing the electronic device.
- A Quality Control check is performed upon the device, to ensure that it meets design specifications.
- The assembled device is placed into packaging, with any other paper required such as manuals, warranty information and customer feedback forms. At this stage the electronic product has been completed.
- The product is placed into a courier bag and the bag is labeled with the customer address for the individual order.
- The shipment is placed to one side, awaiting collection by the courier.

The Flex Machine is designed to operate for up to ten hours without supervision. The system is loaded with components at the beginning of the production run and orders are downloaded into the system database. A full-loaded FlexMachine system will manufacture 2,500 products during the ten hour manufacturing cycle, without human intervention.

### *Ease of Use*

The FlexMachine has been designed to be operated by people with minimal manufacturing experience. Each system will be delivered with a DVD containing a video training guide. This is the level of training required for machine operation.

### *System Set-up*

The system designs are load from the computer controller into the system. Design changes require a new system set-up, can be quickly downloaded over a telephone line from the Machine Manufacturing Company call centre.

The set-up changes are performed by Machine Manufacturing Company's trained people and incur a small fee.

### *Size*

The FlexMachine is designed to be installed in standard buildings, such as a shed, garage or warehouse. The base unit size is approximately eight metres long, 2 metres wide and 1.5 metres high, though actual size varies depending upon installed modules.

This small size allows the FlexMachine to be used by small to medium businesses, including cottage industries. Furthermore, customer production capacity can be enhanced by placing additional FlexMachines into most sites.

### *Modular Construction*

The FlexMachine is based upon a modular design. The core system is enhanced by modules added to perform customer specific tasks. It is planned to expand the range of FlexMachine modules over, with systems optimised for a range of manufacturing niches.

### *Power Supply*

Furthermore, the FlexMachine uses 12VDC electric power. The FlexMachine power consumption allows the system to be located in areas where reliable AC power may not be available, as it can be operated from a generator, batteries or even solar power. In more standard locations, 230V 50Hz and 110V 60Hz AC transformer modules are available to enable the use of electricity from electric utilities.

### *Maintenance*

The FlexMachine requires minimal maintenance, mainly applying grease and oil to moving parts weekly. The maintenance requirements are detailed in attached instructions, and they are designed to be carried out by a novice.

In the event of a system failure, then the failed module or part can be replaced on the system by the user.

## **Marketing**

### *Market Positioning*

The FlexMachine can replace the staff required by a small manufacturing operation of typically 40-50 people. Its simple operation, small size and inexpensive price reduce the barrier for small design businesses to build their products in-house.

Secondly, the system's flexibility for setting-up enables cost-effective limited production runs, enabling small business to fill many previously uneconomic marketing niches.

Thirdly, the FlexMachine is an economic method for smaller business to bring technology to the market, or for larger organisations to produce small product runs of niche items.

Finally, the FlexMachine can be used to enhance a JIT (just-in-time) manufacturing strategy, by locating distributed manufacturing closer to markets, reducing transport delays in supplying customer requirements.

### *Competitors*

The two main source of competition for the FlexMachine are inexpensive labour, such as third-world labour sources, and robotics.

Robotic systems combine high volume production capacity with high fixed costs. As a result, these systems are suitable for large organisations with large production volume. The FlexMachine's niche is manufacturing where product volumes provide insufficient return on investment to justify the use of robotics, yet where quality concerns, lack of available inexpensive people or corporate strategy preclude the use of inexpensive labour.

### *Price*

The FlexMachine price varies from NZ\$0.3 million to NZ\$0.5 million, depending upon the configuration.

### *Place*

Machine Manufacturing Company intends using a combination of an Internet presence, through a specialised web-site to solicit enquiries, and a direct sales force to communicate with customers.

The sophisticated and expensive nature of the FlexMachine product ensures that a direct business-to-business

### *Promotion*

The primary marketing promotion will be through e-mails, an on-line newsletter and mailed promotion material to sales prospects.

## **Manufacturing**

The FlexMachine is manufactured at Machine Manufacturing Company's facilities in Albany, north of Auckland, New Zealand. The machines are assembled into self-assembly kits using in-house FlexMachines automation and minimal human intervention. Each FlexMachine is tailored to individual customer requirements, with customisation achieved through incorporating differing module options.

The Machine Manufacturing Company currently has the ability to produce hundreds of FlexMachines per week. This limited production capacity is intended to be increased to tens of thousands units per week, as soon customer demand is stimulated.

The company intends to establish new manufacturing centres distributed closer to major markets to improve responsiveness to key markets. This strategy is enabled by the FlexMachine technology and is a clear demonstration of the advantages of the product to customers.

## **Post-Sales Support**

Post sale support will be provided by a call centre equipped with a database of all machines, their locations and their current configurations. A small number of trained people will provide 24-hour, 7-day support for any customers having difficulty with their systems.

In addition, this team will perform any new set-ups required. The central database provides a secure off-site back-up of all FlexMachine parameters for customers, eliminating a potential risk to their business.

## **Competitive Advantage**

Machine Manufacturing Company has two main sources of competitive advantage:

1. An exclusive licence from the developers of the technology. This licence provides a barrier to entry for potential competitors, who will need to replicate the technology. In the worst case, this advantage provides a temporary competitive advantage with about a one-year window of opportunity.
2. The people forming Machine Manufacturing Company provide core competencies that are difficult to replicate. These competencies, based upon know of electronic and mechanical engineering, and software development are skills with international skill shortages. The application of these competencies, using continuing innovation from experience with the FlexMachines is anticipated to provide a long-term competitive advantage.

Furthermore, the company initially has a dramatic cost advantage in its economic value chain. This cost advantage provides the platform for rapid growth into the international marketplace. It is anticipated that a strong brand name can be built during this period, that will in turn provide a barrier to competition.

## **Risk factors**

### *Limitations of Machines*

The FlexiMachine has only been tested with a limited range of PCB types, boards and electrical components. While it is not anticipated that any standard type of PCB or board will prove unsuitable for the system, there is always the possibility that unusual products will not be able to be supported by the system.

### *Excessive Warranty Claims*

The FlexMachines have not yet been tested in the field or actual production environments. It is anticipated that each system will have a 2-3 year life-span. However, it is possible that some components will result in shorter than expected lives and will require replacing.

There is an allowance in FlexMachine pricing to cover initial warranty risks while the company learns from practical experience, and allowing improved designs to replace the existing model in production.

### *Loss of Staff*

The company depends upon the key staff. Any loss of staff would be difficult to replace. The company intends encouraging key staff to remain through incentive schemes.

However, the critical requirement for on-going research and development will continue to be handled by development Industries, which has a range of staff deployed over a wider range of activities – thereby minimising the impact of the loss of any one person.

### *Disaster Planning*

It is planned to replicate the Albany manufacturing and call centres into local markets as soon as practical. This move will reduce the risk involved with any single disaster event upon the business.

## **Summary**

In summary, the Machine Manufacturing Company is launching a new concept in manufacturing technology. The relative high value of electronic items compared to the manufacturing overheads encourages the use of niche and distributed manufacturing to better meet customer expectations. The FlexMachine is the platform that small manufacturing firms can use to compete against current large-scale production facilities.

The Machine Manufacturing Company has the manufacturing, marketing and after-sales support strategy to bring this technology to market. The company's competitive advantage will allow rapid growth, while risks to the business can be effectively managed.

This is a company poised to make a difference.