

SAMPLE PAGES FROM EBOOK “BUSINESS ENGINEERS!”

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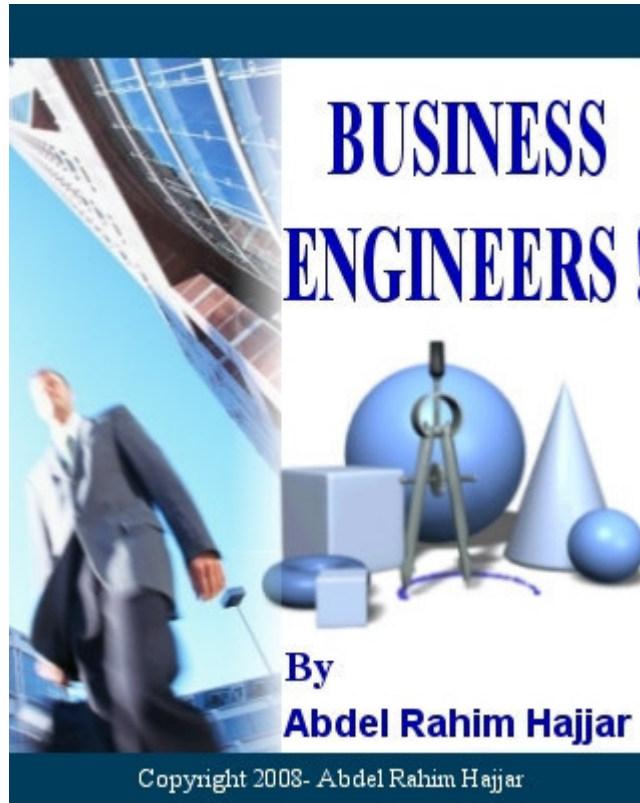


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Foreword

As many are aware of it, the world we live in today is dynamic. No matter how we feel about it, change is happening, so it is to our advantage to accept change and learn to live with it instead of resisting it.

In today's business world, big companies are buying medium and small sized ones. Others are doing joint ventures and even mergers. Also, some local companies are becoming regional and sometimes international. Many internationals are growing to become multinationals and even global. Markets are expanding to encompass the whole world. Many branded products are accessible everywhere as the "business world" is now smaller and competition is becoming tougher.

To survive competition, to cope with change, and to win in the market, big companies are carefully selecting their key employees, and are investing in them big time. These chosen employees will become the leaders directing and running the company business in the winning direction.

Engineers are analytical people who can either design and build systems and products or analyze already built complex systems to transform them into simple ones. They are systematic thinkers and innate problem solvers. They are creative, meticulous, and comfortable with numbers and equations. They always like to optimize, improve, and repair. Though engineers are historically known to use their wide skills pool in technical and engineering domains, it is worthwhile to see what will be the outcome if engineers offered their services and skills to the business sector...

This book points to an interesting trend in today's work market, "Business Engineers!" or Engineers working as business executives! This encompasses engineers working in marketing, market research, management consultancy, supply chain, finance, money management, banking, sales, and many other business related disciplines. Surprisingly, many "Business Engineers" are succeeding, and some of them are making it to the top leading and setting direction in big non-engineering firms.

Type-Trade Matrix of Engineers

Most common matches are marked with a *.

Trade \ Type	Design	Construction	Production	Quality Assurance	Technical Support & Maintenance	Testing & Commissioning	Sales
Mechanical	*	*	*	*	*	*	*
Electrical	*	*	*	*	*	*	*
Aerospace	*	*	*	*	*	*	*
Computer Hardware	*		*	*	*	*	*
Electronics	*		*	*	*	*	*
Biomedical	*		*	*	*	*	*
Civil	*	*		*	*	*	
Marine	*	*				*	*
Agricultural	*		*	*			*
Chemical	*		*	*		*	
Materials	*		*	*		*	
Health & Safety	*						*
Petroleum	*	*				*	
Environmental	*			*			
Industrial	*			*			
Nuclear	*		*				
Mining & Geological	*	*					

B-Modeling:

Basically, the given is pretty clear. But to proceed with designing and implementing the solution in the most efficient and quick way, one needs to model the problem in the simplest way possible. So let us start by doing this.

Let us first of all start by labeling the dimensions of the piece of metal, the constants, and the variables involved. Let the length be **L**, the width be **W**, the depth **d**, the constant voltage **V**, and the variable current **I** so that we can lay out the following:

Rectangular piece of metal $\left\{ \begin{array}{l} \mathbf{L} \\ \mathbf{W} \\ \mathbf{d} \end{array} \right.$ Voltage Source $\left\{ \begin{array}{l} \mathbf{V} \\ \mathbf{I} \end{array} \right.$

From the given, we can also write the following: $\mathbf{d} < \mathbf{W} < \mathbf{L}$ (1)

The second step of modeling involves laying out a schematic of the problem as follows:

The piece of metal with dimensions:

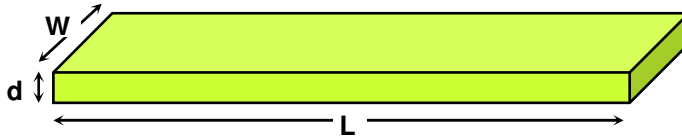


Fig 3.8- Piece of metal with dimensions

The voltage source with 2 electrical wires:

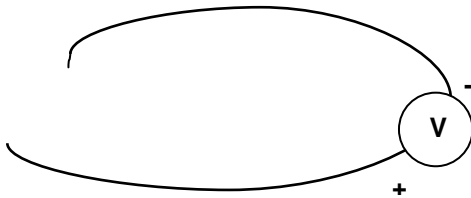


Fig 3.9- Voltage source with electrical wires

Once a schematic and a “mathematical” model of the problem are laid down on paper or computer, the engineer seeking a solution finds it much easier to manipulate the variables involved to solve the problem and reach the optimum design.

As defined by the American Marketing Association (AMA), “Marketing is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives”. Marketing is the practice of meeting consumers’ demands by focusing on a product or service. Marketing is inevitable to most businesses. In order for a business to survive competition and to endure longevity, its marketers use their marketing techniques to promote consumer awareness of the products and services they are providing.

Marketing is considered as a creative field. It encompasses several disciplines including advertising, branding, brand building, distribution, market research, strategic management, and even sales. Sales is not always considered under marketing. In many instances it is considered as a separate field.

Marketers anticipate the future demands of their customers in collaboration with market research executives. Marketers usually focus on both increasing the number of their customers and on the retention and strengthening of their relationships with existing customers. Usually, there are two levels of marketing, Strategic and Operational. While strategic marketing focuses on positioning the company products, brands, and services with respect to competition, operational marketing focuses on increasing the number of customers and retaining and maximizing the value out of existing ones.

Marketing also involves meeting customer needs and satisfying him with prompt services. In academia and in practice, it has been acknowledged that a number of company performance actions can influence the consumer decision to purchase goods or services. These actions were referred to as the “Marketing Mix”. The Marketing Mix includes four elements: Product, price, place, and promotion. These are commonly known as the “Four P’s” which a marketer can use to craft a marketing plan.

The 4 P’s:

Product is the service or good that is presented to the end consumer. The product part of marketing deals with the specifications and quality of the service or good, and how it satisfies the need of the end consumer. “Product” in marketing is wide. It includes packaging, design, bulk, quality, and supporting elements. Supporting elements include after sales customer support, coupons, warranties and guarantees amongst many others.

A Supply Chain is the system of organizations, people, activities, information, and resources involved in moving a product or service from the first supplier to the last customer or end consumer. Usually the supply chain of fast moving consumer goods starts with the suppliers of raw and packaging materials and ends with the end product at the shelves of high and low frequency stores. First, raw and pack materials are supplied to the producing plants. In the production plants, raw and pack materials are transformed into finished products after passing through several making, filling, and packing stages. Finished products are then stored in the warehouse of the production plants. Afterwards, finished products are shipped to major warehouses in a wide range of geographical locations. Next, finished products are shipped from major warehouses to a large number of widely dispersed distribution centers commonly known as DC's. Finally, wholesalers transport finished products from DC's to high or low frequency stores (HFS & LFS). Supermarkets are good examples of HFS's, and small shops are examples of LFS's. Below is a simplified descriptive schematic of an FMCG Supply Chain.

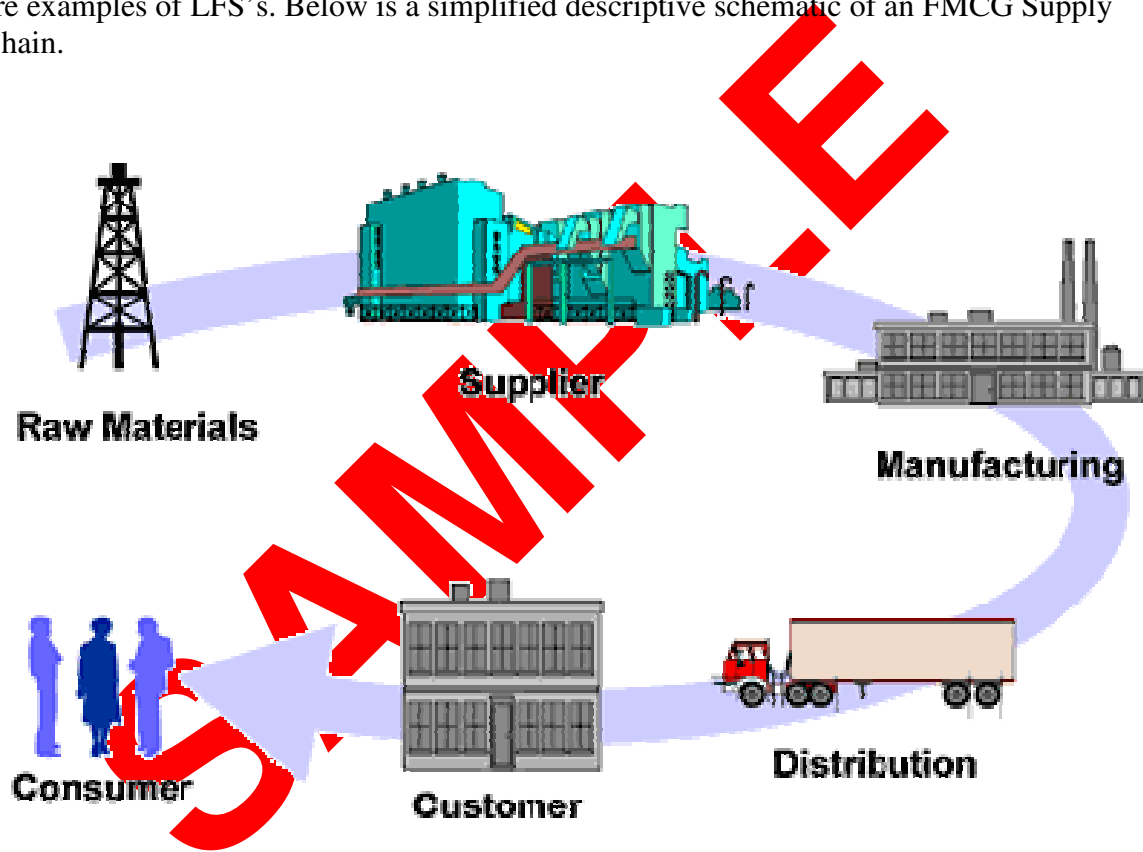


Fig 6.1-FMCG Supply Chain

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