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by N Sitanggang

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Nathanael Sitanggang, Putri Lynna A. Luthan
Lecturer of Building Engineering Education, Engineering
Faculty
Universitas Negeri Medan
Medan, Indonesia
nathanaelsitanggang@unimed.ac.id

Choms Gary Ganda Tua Sibarani
Lecturer of Accounting Education
Economics Faculty
Universitas Negeri Medan
Medan, Indonesia

Abstract—This article aims to provide an overview of the furniture business opportunities at universities as well as some aspects that must be understood to start a furniture business. The existing furniture business at University of Medan is managed by the Furniture Business Unit located in the FT UNIMED Wood Workshop. U2F FT UNIMED starts from community service activities through Intellectual Products Product Development Program in 2018. Furniture business is very potential for universities because universities have various potentials, such as: the availability of human resources (lecturers, technicians and students), office building facilities, wood workshops, machine tools, electric power and clean water. Another potential, universities are able to implement aspects of resource management such as money, materials, manpower, method, machine, market, and information that strongly supports the smoothness of the furniture business. Furniture business aspects that need to be understood are aspects of marketing, financial aspects, and aspects of furniture. The Stages to start the furniture business, namely: stage of preparation, stage of implementation, and marketing stage. Furniture business in universities gain added value (value added) in the absorption of labor and provide employment opportunities and educate students into new entrepreneurs.

Keywords—business opportunities; furniture; university

I. INTRODUCTION

Each university must perform to carry out the tasks mandated in Tri Dharma Perguruan Tinggi, that is education, research and community service. Devotion to the community is one of the obligatory duties of universities to help the community to improve their lives, through extension activities, training, and implementation of research results. Related to the furniture business, the target community in community service activities in the college environment is students and lecturers practice. With the potential of the college provides a good opportunity to do furniture business, as well as carrying out community service activities. The potential of universities is the availability of wood workshop facilities, lecturers, technical personnel, students as new entrepreneurs' candidates, and equipment available in wood workshops that can be used to make furniture from teak wood such as chairs, tables, cabinets, beds, and kitchen set. Lecturers and technical personnel can train students to become skilled in furniture carpentry. If the college utilizes the resources available in the wood workshop well, then the furniture business is very feasible to be realized. There are several benefits of the furniture business in college,

namely: 1) obtaining a generate, 2) growing entrepreneur attitudes for students, and 3) providing employment opportunities to students.

Business opportunities at universities gain support from the government, through the Directorate of Research and Community Service, the Directorate General for Research and Development, the Ministry of Research, Technology and Higher Education. Directorate of Research and Community Service provides an opportunity for universities to open businesses through Intellectual Products Product Development Program Campus (PPUPIK). PPUPIK aims to accelerate the process of developing entrepreneurship culture in universities, to help create access for the creation of new entrepreneurs, to support the autonomy of college campuses through the acquisition of independent income or partnership, to provide opportunities and work experience to students, encourage the development of cultural use of research results for college community, cooperation with the private sector including industry and the marketing sector [1].

The existing competitor is a furniture company located in the city or around the campus, so that middle-class people who are eager to buy various furniture products that are marketed are constrained by the price offered. In addition, competitors can only show brochures or magazines to customers, so it cannot provide services or solutions to customers about the furniture needed in accordance with the capacity of the room owned. Meanwhile, the college furniture business has several advantages, such as: providing consulting services design furniture and displaying three-dimensional images, so that customers can imagine the finished product of the desired furniture. The tight competition of furniture business will be won by the college furniture business because colleges can implement the principles of management professionally, which includes planning (Planning), Organizing (leadership), leadership (Leading) and Controlling [2].

Based on the above description can be seen that the furniture business opportunities wide open for universities, as well as the implementation of mandatory duties of community service activities. But the question arises, how to start a furniture business in college? This article aims to provide a discussion on how to start a furniture business at a college. In terms of starting a furniture business, what needs to be understood is the aspect of marketing, financial aspects and the process of procurement of wood materials, ranging from logs

into wooden boards to finishing. The discussion is based on various sources and experience of managing Furniture Business Unit (U2F) Faculty of Engineering, State University of Medan (FT UNIMED) doing furniture business as part of the implementation of community service activity in PPUIK scheme year 2018.

A. Marketing Aspects

Marketing is a very important aspect for the survival of a business. Therefore, to start a furniture business needs to understand the marketing aspect in order to gain profit. Marketing activities are promoting, pricing, and distributing products to buyers. In terms of marketing aspect, Syahyunan explained to serve the important target market understood the concept of marketing mix, namely [3]: product, price, distribution, and promotion. While Kasmir call it marketing mix strategy, namely: product strategy, pricing strategy, location and distribution strategy, and promotion strategy [4]. Product (product) is the furniture offered by the business unit to the target market; the price is the amount of value exchanged to obtain a piece of furniture; place and distribution is the undertaking of a furniture business unit to ensure the availability of furniture for the customer when required; and promotion (promotion) is a marketing communications activity about the furniture generated business unit so that customers are interested in buying it. For more details, the concept of marketing mix can be seen figure 1.



Fig. 1. Concept of marketing mix.

B. Financial Aspects

Aside from the marketing aspect, an understanding of the financial aspects is needed to start a furniture business so that the financing and business continuity planning can be done well. To assess the ability of the furniture business to gain profit and measure the level of management effectiveness to know the profitability ratio (profitability ratio). Kasmir describes profitability ratios consisting of [4]: 1) profit margin on sales, 2) return on investment (ROI), and 3) return on equity (ROE). Profit margin on sales is the ratio between profit margin and sales. Return on investment (ROI) is the ratio between net income to total assets, while Return on Equity (ROE) is the ratio between net income with equity. To know the profitability ratios in advance the furniture business managers prepare the balance sheet, the calculation of profit and loss, and cash flow. Balance (income statement) is a financial statement showing the position of assets, debt, and venture capital at a certain time; the balance sheet is a financial

statement showing the amount of income earned and the costs incurred in a given period; and cash flow (cash flow) is the amount of cash out and cash coming from business due to investing.

C. Furniture Aspects

Furniture is made from wooden main material, which produces furniture such as cabinets, tables, seating, and beds. The best furniture is furniture made of teak wood. Furniture has several characteristics, namely: classic furniture and contemporary furniture [5]. Classic furniture: prioritizing ornamentation / engraving, handcrafted manually by hand, elaborate shape furniture, quality materials for durability, and requires special skills (see figure 2). While contemporary furniture: functional priority, decoration / variation of the nature machine (machine-made), easily mass-produced, furniture simple form, but unique, the use of quality materials is very relative, and made tend to commercial purposes (see Figure 3). Equipment and machinery of wood furniture today, demands systematic workmanship, and creative design results, to produce market-oriented furniture. According to Wicaksono et al, furniture or furniture is an important element in interior design, in line with the concept of interior design [6]. The concept of rustic that tends to use wood materials is very popular community. Therefore, wood furniture strongly supports rustic interior design in a residential house.



Fig. 2. Classic furniture.



Fig. 3. Contemporary furniture.

Based on the above description, it is clear that universities are very open furniture business opportunities because universities have various potentials, namely: the availability of office building facilities, wood workshops, machine tools, electric power, clean water and human resources. Human Resources, according to Wijayanto, is a management function related to recruitment processing, placement, training, and human resources development [13]. The management process includes several stages: HR planning, recruitment, selection, employee training and development, performance appraisal, rewards up to termination of employment.

Furniture business in universities can be carried out as a community service activity through PPUPIK based on wood workshop by establishing a furniture business that makes teak products such as chairs, cabinets, kitchen sets and beds. Collaboration between furniture lecturers and accounting lecturers is a potential that can ensure good production planning and financial management. Furniture business is supported by the ability of students to draw furniture with sketch up that process the image of the product to look like the original and the proper equipment to make furniture products with the latest design. Furniture business also develops services and design consultancy that directly produce furniture products such as kitchen set, room with backdrop, reception room design, and so on according to customer demand. The establishment of a furniture business will gain value added in employment and provide employment opportunities and educate students into new entrepreneurs.

II. METHOD

Furniture Business Unit (U2F) is held in FT UNIMED Wood Workshop in 2018. U2F FT UNIMED is an activity of dedication to society with Scheme of Intellectual Product Development Program Campus (PPUPIK) year I. Furniture business done with several stages: preparation stage, implementation stage, and marketing stage. The preparatory phase includes: workplace preparation, office preparation, tool preparation, material preparation (teak wood, nails, glue, putty, and paint) and recruitment of furniture / student entrepreneurial candidates. Implementation stage, including: furniture drawing planning, drawing three-dimensional image, workmanship of furniture according to drawings, and assembly. At this stage, students practice tapping, cutting, unifying wood, and painting exercises. While the marketing stage, including: dissemination of information about U2F products (brochures and web), held an exhibition, containing news about U2F / PPUPIK in newspaper Business Medan (National News Page). To improve product quality, U2F cooperates with Tri Tunggal Mandiri Furniture Jepara Company and conducts Jepara Carving Training for students working in U2F FT UNIMED. To ensure the quality of production and business smoothness, U2F create an organizational structure consisting of: Director, Deputy Director, Human Resources Manager, Production Manager, Quality Assurance Manager, Marketing Manager, Technician, Designer, and Baker.

Furniture manufactured at U2F is a wardrobe, cabinet under the stairs, bed, and kitchen set of material made of teak wood. While the pieces of teak wood (waste) is produced into flower pots, wall clocks, table lamps, dispensers and tissue boxes are

very interesting and sold to increase business revenue. Thus teak wood materials can be utilized optimally. The use of used wood into furniture can benefit furniture companies, as is done by CV. Kurniawati et al. in Yogyakarta, which has successfully used timber as the main raw material of furniture, even the company's advantage because it is able to perform the production of wood furniture that is recycled and very in demand by customers in the international market [8].

III. RESULT AND DISCUSSION

Based on the theoretical basis described above, to start the furniture business must begin with an adequate understanding of aspects of marketing, financial aspects, and aspects of furniture. These three aspects must be well understood because they are related. The marketing aspect examines product, price, distribution, and promotion; the financial aspects of the study of how to seek profit and know the profitability ratios (profitability ratio); while the furniture aspect examines the process of procurement of teak wood ranging from wooden log to board forms to minimize business capital. If the manager of the furniture business directly purchases the teak plaque from the Material Seller Shop, then the business capital will be greater due to the high price of teak planks. This discussion focuses on the implementation of management aspects of the furniture business: Money, Material, Manpower, Method, Machine, Market, and Information (6M + I).

A. Capital (Money)

Starting a new business requires sufficient capital to purchase equipment and wood materials to be used to produce a production. Wood materials required a lot of stock because it takes a long time to drying process. In addition, capital is required every week to pay the wage of a handyman and buy the supporting material.

B. Materials

The process of procuring furniture materials starts from a log, sawing, drying, construction / construction, assembly and finishing, each requiring priority and using a different tool which can be seen in figure 4.



Fig. 4. Procurement process of furniture materials.

Briefly, the main ingredients of furniture manufacture consist of wooden log, adhesive material, and support.

1) *Wood log*: Round shaped woods with a diameter varying from 25-80 cm are the result of tree felling in the forest and have not been through any process except the precaution of cracking at the end of the log which can be seen in figure 5. The size of log logs varies, depending on the length requirement furniture to be done. In some species of wood is done stripping the bark of the tree with the purpose of acceleration of drying wood.



Fig. 5. Log teak wood.

The purchase of logs depends on the diameter and length of the wood that will be used for the manufacture of furniture. Example calculation to buy logs in the city of Medan can be seen table 1.

TABLE 1. CALCULATION OF LOG PURCHASE OF TEAK WOOD

Trunk	Edge Diameter 1 (inch)	Edge Diameter 2 (inch)	Length (feet)	Volume
1	9	10	7	63
2	9	10	8	72
3	10	11	9	99
Total				234

Prices per m3 of teak logs vary depending on diameter and length, usually around Rp. 8.000 s / d Rp. 10.000. The price of 3 logs of teak logs in table 1 is $(63 + 72 + 99) \text{ m}^3 \times \text{Rp. } 10.000 = \text{Rp. } 2.340.000,-$

2) *Adhesive*: The adhesive material provides strength when the wood is shaped into a board. The use of adhesive material consists of 2 kinds of epoxy and wood glue (white glue).

3) *Supporting materials*: Supporting materials on the manufacture of furniture are hinges, handles, rails, keys and cloth hangers or kitchen utensils.

C. Labors (Manpower)

The labor required to make furniture from teak wood is:

1) *Carpenter*: The usual carpentry made of teak furniture is different from the artisans who make furniture from HPL material (High Pressure Laminating) or multiplex materials using paint finishing.

2) *Carving*: Usually teak wood products are used accessories carving, preferably furniture making business with teak wood must have a carpenter competent carve. Carving can be made in accordance with the ornament of North Sumatra or Jepara.

3) *Designer*: Tight competition furniture business, requires a designer who has the expertise to make furniture design in accordance with customer needs and available space. This will increase the attractiveness of customers to buy. The existence of designers in the furniture business will be able to win the competition in the furniture business.

4) *Painter*: The final process of furniture making is finishing with paint. This process largely determines the final quality of a furniture product. The process of painting starts from caulking, sifting and painting. At the time of painting painters must know the color mix that will be used in accordance with customer demand. When sanding requires special skill, because the sandpaper process will determine the final process of painting. If the sanding process is not tidy and flat, then the final result of the painting will look uneven wood. While at the time of painting required special skills to mix paint materials and expertise using gun for painting.

D. Working Methods

1) *Sawmill logs teak wood*: dimensions of wood according to the size of furniture to be made. Some types of board sizes used for furniture making consist of: for left-right wall of thick cabinets needed ranging from 2 s / d 3 cm, cabinet doors 1.5 s / d 2.5 cm, cabinet shelves 2 s / d 2, 5 cm and rear wall cabinets 1.5 s / d 2 cm. At the time of the sawing need to be done compounding to determine the thickness of wood that will be needed. Sawmill processing in sawmill can be seen in figure 6.



Fig. 6. Sawmilling process of teak wood logs.

2) *Wood drying*: Wood should be dried first because of its physical properties that can change shape along with changing levels of water content in the wood. Drying wood various methods, there is do dryer wood with special drying equipment and drying naturally. The natural drying process can be seen in figure 7. This process is done so that the wood to be used remains in a precision state.



Fig. 7. Drying of teak wood.

3) *Construction*: The construction process begins at the wood shrinkage stage to obtain a smooth surface using a craft machine that can be seen in figure 8.



Fig. 8. Wood surface tackling.

After the wooden stitching is continued with the work of leveling the wood surface by using a more specialized craft machine which can be seen in figure 9.



Fig. 9. Timber thickness size.

4) *Cutting wood*: The cutting process is done so that the wood to be used in accordance with the size of the furniture to be formed, the tool used to cut the wood is a jig saw table. The process of cutting wood can be seen in Figure 10.



Fig. 10. Table saw.

5) *Sanding*: The next process is the sanding process. In the sanding work the wood should be no longer defective like broken, cracked and perforated. This process is carried out to produce a smooth surface by using a grinder that uses a backing pad for the sandpaper and a tank machine that can be seen in figure 11. The sanding process is carried out gradually by sand paper with a different gradual sandpaper starting from size 100, 120, 140, 180 and 360.



Fig. 11. Sanding wood.

6) *Assembling*¹ The assembly is done depending on the type of product, if the furniture is designed Knock Down or Lifted product, then the assembly can be done after finishing. However, for components such as doors and drawers need to be assembled first. If all components that require pre-assembly are properly tuned, then sanding can be resumed after finishing. For clarity see figure 12.



Fig. 12. Assembling.

7) *Equipment installation:* Installation of equipment such as hinges, locks and door handles are installed after the finishing process is complete, so the quality of the material is assured. Therefore, the furniture fixtures are removed or covered with plastic at the time of finishing handyman. This will maintain the durability of the equipment of rust or scratch of the sandpaper.

8) *Finishing:* Finishing is the final stage in the process of making furniture, as a step after completion of all components are connected properly to do the painting.

E. Equipment (Machine)

To maximize the production of furniture with teak wood materials required machine tools such as figure 13.



Fig. 13. Machine tools for furniture production.

F. Market

Any business activity would expect profit. To gain profit, of course, many products must be sold. Therefore, furniture entrepreneurs should make every effort to find customers to buy furniture that has been produced. Prospective buyers for furniture business established in college is very open opportunities. Lecturers, employees, and students and their families are potential buyers who come from internal campus. Residents of residential complex located around the campus are potential buyers from external campus.

G. Information

To get more subscribers, furniture entrepreneurs try to inform the furniture business to the public at large. Business information can be done using print media (product brochures), audio-visual media, mass media, web (online promotion), and exhibitions. Information should contain furniture models offered, product prices, and purchase facilities such as: delivery of goods and purchase of goods through cash or non-cash transactions.

IV. CONCLUSION

Colleges have a great opportunity to do business furniture, by optimizing the function of wood workshop owned. Furniture business established colleges have advantages compared with similar competitors because the furniture business is managed by implementing aspects of management in a professional manner. Colleges have a lot of potential that is already available before starting furniture business, namely: human resources (lecturers, technicians, and students), office buildings, wood workshops, machine tools, electric power, and clean water. Furniture business in universities gain added value (value added) in the absorption of labor and provide employment opportunities and educate students into new entrepreneurs. With regard to business capital, universi¹⁵ have the opportunity to obtain initial funding from the Directorate of Research and Community Service through the Intellectual Product Development Program of Campus.

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