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Chapter 1

INTRODUCTION TO FINANCE FOR ENTREPRENEURS

FOCUS

The purpose of this first chapter is to present an overview of what entrepreneurial finance is about. In doing so we hope to convey to you the importance of understanding and applying entrepreneurial finance methods and tools to help ensure an entrepreneurial venture is successful. We present a life cycle approach to the teaching of entrepreneurial finance where we cover venture operating and financial decisions faced by the entrepreneur as a venture progresses from an idea through to harvesting the venture.

LEARNING OBJECTIVES

LO 1.1: Characterize the entrepreneurial process.
LO 1.2: Describe entrepreneurship and some characteristics of entrepreneurs.
LO 1.3: Indicate several megatrends providing waves of entrepreneurial opportunities.
LO 1.4: List and describe the seven principles of entrepreneurial finance.
LO 1.5: Discuss entrepreneurial finance and the role of the financial manager.
LO 1.6: Describe the various stages of a successful venture's life cycle.
LO 1.7: Identify, by life cycle stage, the relevant types of financing and investors.
LO 1.8: Understand the life cycle approach used in this book.

CHAPTER OUTLINE

1.1 THE ENTREPRENEURIAL PROCESS
1.2 ENTREPRENEURSHIP FUNDAMENTALS
- A. Who is an Entrepreneur?
- B. Basic Definitions
- C. Entrepreneurial Traits or Characteristics
- D. Opportunities Exist But Not Without Risks

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- A. Societal Changes
- B. Demographic Changes
- C. Technological Changes
- D. Emerging Economies and Global Changes
- E. Crises and "Bubbles"
- F. Disruptive Innovation

1.4 PRINCIPLES OF ENTREPRENEURIAL FINANCE
- A. Real, Human, and Financial Capital must be Rented from Owners (Principle #1)
- B. Risk and Expected Reward go Hand in Hand (Principle #2)
- C. While Accounting is the Language of Business, Cash is the Currency (Principle #3)
- D. New Venture Financing Involves Search, Negotiation, and Privacy (Principle #4)
- E. A Venture's Financial Objective is to Increase Value (Principle #5)

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F. It is Dangerous to Assume that People Act Against Their Own Self-Interests (Principle #6)
G. Venture Character and Reputation can be Assets or Liabilities (Principle #7)
1.5 ROLE OF ENTREPRENEURIAL FINANCE
1.6 THE SUCCESSFUL VENTURE LIFE CYCLE
A. Development Stage
B. Startup Stage
C. Survival Stage
D. Rapid-Growth Stage
E. Early-Maturity Stage
F. Life Cycle Stages and the Entrepreneurial Process
1.7 FINANCING THROUGH THE VENTURE LIFE CYCLE
A. Seed Financing
B. Startup Financing
C. First-Round Financing
D. Second-Round Financing
E. Mezzanine Financing
F. Liquidity-Stage Financing
G. Seasoned Financing
1.8 LIFE CYCLE APPROACH FOR TEACHING ENTREPRENEURIAL FINANCE
SUMMARY

DISCUSSION QUESTIONS AND ANSWERS

1. *What is the entrepreneurial process?*

   The entrepreneurial process comprises: developing opportunities, gathering resources, and managing and building operations with the goal of creating value.

2. *What is entrepreneurship? What are some basic characteristics of entrepreneurs?*

   Entrepreneurship is the process of changing ideas into commercial opportunities and creating value. While there is no prototypical entrepreneur, many are good at recognizing commercial opportunities, tend to be optimistic, and envision a plan for the future.

3. *Why do businesses close or cease operating? What are the primary reasons why businesses fail?*

   Nearly one-half of businesses that fail do so because of economic factors including inadequate sales, insufficient profits, and industry weakness. Many of the economic factors are directly tied to financing concerns (e.g., insufficient profits for investors). Almost 40 percent of business failures not citing economic factors cite specifically financial causes like excessive debt and insufficient financial capital. The remaining cited reasons for failure include a lack of business and managerial experience, business conflicts, family problems,

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fraud, and disasters. Many businesses close and fail due to financial trouble which is mostly related to lack of sales and unsatisfactory profits.

4. *What are five megatrend sources or categories for finding entrepreneurial opportunities?*

   We identify five megatrend categories. They are: (1) societal changes, (2) demographic changes, (3) technological changes, (4) emerging economies and global changes, and (5) crises and bubbles.

   Under societal changes we discuss the gig economy and the sharing economy. The **gig economy** is where individuals accept short-term job assignments or "gigs" instead of having full-time employment. The **sharing economy** is where individuals share their assets, such as homes, vehicles, and personal time, with others to provide a new way for distributing goods and services.

5. *What asset and financial bubbles have occurred recently? How can bubbles and financial crises lead to entrepreneurial opportunities?*

   The "dot.com" or Internet bubble burst in 2000. An economic recession that began in 2001 was exacerbated by the 9/11 terrorist attack. The housing asset bubble, fueled by sub-prime mortgages offered to borrowers who could not afford them, burst in 2006. By the second half of 2008, a "perfect financial storm" erupted and possible financial collapse became a reality.

   Alternative and renewable energy, accompanied by project credit subsidies, production and investment tax credits, and loan guarantees benefited as a result of the recent financial crisis. These developments and other efforts to stimulate economic activity provided many new entrepreneurial opportunities.

6. *What is e-commerce? Why are the Internet economy and e-commerce here to stay?*

   E-commerce involves the use of electronic means to conduct business online. Activities include marketing and selling online and electronic retailing.

   The internet economy and e-commerce are here to stay. We will never do business the same way we did before the Internet and the Web. Many business plans were funded with the belief that part of the benefit could be captured by sellers (producers and retailers). However, we now know that the Web so effectively facilitates price competition that it is hard for suppliers and retailers to protect margins. E-commerce may not deliver the margins once conjectured, but the Internet is still one of the most radical innovations in our lifetime.

7. *What is meant by disruptive innovation? What is the "sharing economy" societal trend?*

   An **innovation** involves the introduction of a new idea, product, or process. A **disruptive innovation** is an innovation that creates a new market or network that disrupts and displaces an existing market or network.

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8. *Identify the seven principles of entrepreneurial finance.*

   The seven principles are:
   (1) Real, human, and financial capital must be rented from owners
   (2) Risk and expected reward go hand in hand
   (3) While accounting is the language of business, cash is the currency
   (4) New venture financing involves search, negotiation, and privacy
   (5) A venture's financial objective is to increase value
   (6) It is dangerous to assume that people act against their own self-interests
   (7) Venture character and reputation can be assets or liabilities

9. *Explain the statement: "The time value of money is not the only cost involved in renting someone's financial capital."*

   The total cost of renting someone's financial capital is typically significantly higher than just the time value of money due to the possibility that the venture won't be able to pay. The rent is risky or uncertain requiring an expected compensation in addition to the time value of money for the renting agreement to be put in place.

10. *How do public and private financial markets differ?*

    Public financial markets are markets where standardized contracts or securities are traded on organized securities exchanges. **Private financial markets** are markets where customized contracts or securities are negotiated, created, and held with restrictions on how they can be transferred.

11. *What is the financial goal of the entrepreneurial venture? What are the major components for estimating value?*

    The venture's financial goal is to maximize the value of the venture to its owner(s). The major components of estimating value are projected free cash flow (cash generated in a specified time period that exceeds funds needed to operate, pay creditors, and invest in the assets needed to grow the venture) and its risk (including the timing and realized amount).

12. *From an agency relationship standpoint, describe the possible types of problems or conflicts of interest that could inhibit maximizing a venture's value.*

    There are two basic types of conflicts. *Owner-manager (agency) conflicts* occur when there are differences between managers' self-interests and the interests of the owners who hired the managers. There is also the possibility of *owner-debtholder conflicts* that take the form of a divergence of the owners' and lenders' self-interests as the venture gets close to bankruptcy.

    Agency relationships arise when "principals" hire "agents" to perform specified activities or services. Businesses are involved in two primary agency relationships: (1) owner-manager conflicts, and (2) manager-debtholder conflicts. The owner-manager agency problem exists

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when managers have personal goals that compete with maximizing the value of the venture. The manager-debtholder conflict exists when debtholders make loans to firms but give responsibility to managers for deciding on the firm's risk of failure or bankruptcy. When loans are initially made, interest rates reflect the then current riskiness of the firm. Subsequently, managers may, on behalf of the owners, make the firm riskier for the benefit of owners at the expense of debtholders.

13. *Briefly discuss the likely importance of an entrepreneur's character and reputation on the success of a venture. What role does social responsibility plan in the operation of an entrepreneurial venture?*

    A survey of successful entrepreneurs by Timmons and Stevenson indicated that a majority felt that having high ethical standards was the most important factor in the long-term success of their ventures. For discussion, see Timmons and Spinelli, *New Venture Creation*, 8th ed., 2009, Ch. 10. Taking the time and money to invest in the venture's character will help ensure that it is an asset rather than a liability.

    Many entrepreneurial ventures provide great societal benefit through their introduction of new products and services. They also foster competition in existing markets providing more economically attractive prices for existing products and services. In many cases an entrepreneurial venture's social contribution is reflected in its commercial success. The two need not be mutually exclusive.

14. *What is entrepreneurial finance and what are the responsibilities of the financial manager of an entrepreneurial venture?*

    Entrepreneurial finance is the application and adaptation of financial tools and techniques to the planning, funding, operations, and valuation of an entrepreneurial venture. The practice of financial management in entrepreneurial finance involves record keeping, financial planning, the management of operations and assets, and the acquiring of new assets and the financing of those assets necessary to grow the venture over its lifetime.

15. *What are the five stages in the life-cycle of a successful venture?*

    They are: (1) Development Stage, (2) Startup Stage, (3) Survival Stage, (4) Rapid-Growth Stage, and (5) Early-Maturity Stage.

16. *New ventures are subject to periodic introspection on whether they should continue or abandon. Explain the types of information you would expect to gather and how it would be used in each stage to aid an entrepreneur's approach to the venture's future.*

    Types of information to be gathered would be income statements, balance sheets, cash flow statements, general economic conditions, and product market conditions. These would all be stacked up against original projections to determine the feasibility of achieving the ventures goals.

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17. *Identify the types of financing that typically coincide with each stage of a successful venture's life cycle.*

    Development Stage – Seed Financing
    Startup Stage – Startup Financing
    Survival Stage – First-Round Financing
    Rapid Growth Stage – Second-Round, Mezzanine and Liquidity-Stage Financing
    Maturity Stage – Obtaining bank loans, issuing bonds and issuing stocks

18. *Identify the major sources, as well as the players, associated with each type of financing for each life cycle stage.*

    Development Stage – Entrepreneur's assets, family and friends
    Startup Stage – Entrepreneur's assets, family, friends, business angels, venture capitalists
    Survival Stage – Business operations, venture capitalists, suppliers, customers, government assistance programs, and commercial banks
    Rapid-Growth Stage – Business operations, suppliers, customers, commercial banks, and investment bankers
    Early-Maturity Stage – Business operations, commercial banks and investment bankers

19. *Describe the life cycle approach for teaching entrepreneurial finance.*

    The life cycle approach to entrepreneurial finance considers major operating and financial decisions faced by entrepreneurs as they manage their ventures during the five life cycle stages that were previously identified. See Figure 1.6.

20. *From the Headlines—PopSockets: Briefly describe the market PopSockets seeks to address and how PopSockets' initial device addresses that market. Give some examples of how PopSockets can expand its market and tap additional sources of capital.*

    Answers will vary: "PopSockets supplies products "to increase the functionality of digital devices we use daily." The addressable market includes anyone having such a device. Their product offerings have already expanded to include the PopTop, PopWallet, PopThirst, and PopMirror." Through creative thinking and continued cost-effective innovation with a keen focus on affinity branding of its products for use as "swag," PopSockets' market expansion opportunities appear almost unbounded. Long-term (non-fad) adoption of PopSockets devices for enhancing the use of digital devices could lead to its becoming a public company (and IPO rumors have surfaced). Of course, in the dynamic global markets and supply chains, there is always the possibility that PopSockets will be acquired and assimilated into an entity having available capital for expansion."

INTERNET ACTIVITIES

1. *Web-surfing exercise: Develop your own list of the five most important societal or economic trends currently shaping our society and providing major business opportunities. Use the*

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Web to generate potential venture ideas related to the trends and to gather commentary and statistics on them.

Students can be directed to do generic web searches on "megatrends" or "demographics" or "emerging technologies" or similar terms to start their process of building their own list of five societal or economic trends. The instructor can draw on personal experiences, recent impressions from the Wall Street Journal and Bloomberg Businessweek to supplement any discussion of the students' lists.

2. *Determining several "resources" available from the Small Business Administration for entrepreneurs that might be useful in starting, financing, and managing an entrepreneurial venture. The SBA Web site in http://www.sba.gov/advo/ for information relating to recent annual numbers of employer firm births and the importance of small businesses to the U.S. economy.*

   The Instructor can use the provided link to update the textbook's data on the number of employer firm births and the impact of small businesses on the U.S. economy.

3. *Following are some pairs of famous entrepreneurs. Using the Web if needed, associate the entrepreneurs with the companies they founded:*

1.Steve Jobs and Steven Wozniak	*A. Google*
2.Bill Gates and Paul Allen	*B. Ben & Jerry's*
3.Larry Page and Sergey Brin	*C. Microsoft*
4.Ben Cohen and Jerry Greenfield	*D. Apple, Inc.*

   Solutions:

1. Steve Jobs and Steven Wozniak	[D. Apple, Inc.]
2. Bill Gates and Paul Allen	[C. Microsoft]
3. Larry Page and Sergey Brin	[A. Google]
4. Ben Cohen and Jerry Greenfield	[B. Ben & Jerry's]

4. *Search the Web for recent developments on the part of Airbnb and Uber to disrupt the lodging ad taxi industries, respectively. Also search the Web and attempt to identify other possible innovations that may be disrupting existing markets and networks.*

   Students can be directed to conduct specific web searches on recent Airbnb and Uber developments, write brief summaries of their findings, and be prepared to discuss their findings. The instructor also may ask students to conduct generic web searches in an effort to identify and be prepared to discuss examples of "new" or "different" innovations that are disrupting existing markets and networks. Differences of opinion among students hopefully will result in a lively discussion.

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EXERCISES/PROBLEMS AND ANSWERS

1. *[Financing Concepts] The following ventures are at different stages in their life cycles. Identify the likely stage for each venture and describe the type of financing each venture is likely to be seeking and identify potential sources for that financing.*

   A. *Phil Young, founder of Pedal Pushers, has an idea for a pedal replacement for children's bicycles. The Pedal Pusher will replace existing bicycle pedals with an easy release stirrup to help smaller children hold their feet on the pedals. The Pedal Pusher will also glow in the dark and will provide a musical sound as the bicycle is pedaled. Phil is seeking some financial help in developing working prototypes.*

   Since the venture is still in the idea stage and searching for prototype capital, the venture would be classified in the development stage. While in this stage, the venture will be making efforts to obtain seed financing, which typically comes from the entrepreneur's assets or from family and friends.

   B. *Petal Providers is a firm that is trying to model the U.S. floral industry after its European counterparts. European flower markets tend to have larger selections at lower prices. Revenues started at $1 million last year when the first "mega" Petal Providers floral outlet was opened. Revenues are expected to be $3 million this year and $15 million next year after two additional stores are opened.*

   Since the venture has already established sizable revenue and is in the process of growing its venture by opening new stores, the firm has just entered the rapid growth stage.

2. *[Life Cycle Financing] The following ventures have supplied information on how they are being financed. Link the type and sources of financing to where each venture is likely to be in its life cycle.*

   A. *Voice River provides media-on-demand services via the Internet. Voice River raised $500,000 of founder's capital in April 2019 and "seed" financing of $1 million in September 2019 from the Sentinak Fund. The firm is currently seeking $6 million for a growth round of financing.*

   Voice River received development funds in the form of founders' capital and seed financing. It is currently seeking first round financing at the startup stage.

   B. *Electronic Publishing raised $200,000 from three private investors and another $200,000 from SOFTLEND Holdings. The financial capital is to be used to complete software development of e-mail delivery and subscription management services.*

   Electronic Publishing is still in the development stage. It has raised funds from angels and an early stage venture capital firm.

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3. *[Venture Financing] Identify a successful entrepreneurial venture that has been in business at least three years.*

The instructor can assign a specific entrepreneurial venture or allow students to identify and research ventures they are interested in. Alternatively, the instructor may choose to assign one of the two capstone cases (Eco-Products or Spatial Technology) presented at the end of this text for purposes of trying to answer the following questions.

A. Use historical revenues information to examine how this particular venture moved through its life cycle stages. Determine the length of the development stage, the startup stage, and so forth.

Answers will depend on the entrepreneurial venture being discussed.

B. Determine the financing sources used during the various stages of the venture's life cycle.

Answers will depend on the entrepreneurial venture being discussed.

C. *Identify the venture's equity owners and how shares have been distributed among the owners. What portion of ownership has been allocated to management team members? What, if any, agency conflicts can you identify?*

Answers will depend on the entrepreneurial venture being discussed.

4. *[Financial Risk and Return Considerations] Explain how you would choose between the following situations. Develop your answers from the perspective of the principles of entrepreneurial finance presented earlier in the chapter. You may arrive at your answers with or without making actual calculations.*

A. You have $1,000 to invest for one year (this would be a luxury for most entrepreneurs). You can earn a 4% interest rate for one year at the Third First bank or a 5% interest rate at the First Fourth bank. Which savings account investment would you choose and why?

Third First bank: $1,000 x 1.04 = $1,040
First Fourth bank: $1,000 x 1.05 = $1,050

The First Fourth bank loan would be preferred because you would receive $10 more ($1,050 versus $1,040) at the end of one year. This example illustrates the principle: "real, human, and financial capital must be rented from owners." The time value of money is an important component of the rent one pays for using someone else's financial capital.

B. A "friend" of yours will lend you $10,000 for one year if you agree to repay him $1,000 interest plus returning the $10,000 investment. A second "friend," has only

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$5,000 to lend to you but wants total funds of $5,400 in repayment at the end of one year. Which loan would you choose and why?

First friend: $1,000/$10,000 = 10% interest rate
Second friend: $400/$5,000 = 8% interest rate

The second friend is offering you a lower interest rate (8% versus 10%) which would be preferred, other things being equal. This example illustrates the principle: "real, human, and financial capital must be rented from owners." The time value of money is an important component of the rent one pays for using someone else's financial capital.

However, the dollar amount of financial that is needed also must be considered. For example, if you "need" $10,000 then the lower interest rate $5,000 loan is not a viable option. The only viable choice might be to borrow $10,000 at the 10 percent rate of interest.

C. You have the opportunity to invest $3,000 in one of two investments. The first investment would pay you either $2,700 or $3,300 at the end of one year depending on the success of the venture. The second investment would pay you either $2,000 or $4,000 at the end of one year depending on the success of the venture. Which investment would you choose and why? Now, would your answer change if your investment were only $1?

	Low Result	High Result	Expected Value
First investment:	$2,700	$3,300	($2,700 + $3,300)/2 = $3,000
Second investment:	$2,000	$4,000	($2,000 + $4,000)/2 = $3,000

A second principle of entrepreneurial finance is: "risk and expected reward go hand in hand." "Risk" is reflected in the dispersion or range of outcomes. Each investment amount is $3,000 and the expected return on average is $3,000 for each investment. However, the second investment is considered to be riskier in that you might actually receive only $2,000 or two-thirds of your investment at the end of one year. Since the investment amounts and expected values are the same, risk-averse investors would prefer the first investment because it has less dispersion risk.

However, when investments are very small (or are perceived to be small by a specific investor), some investors might make the riskier investment in the "hope" the highest return will occur. This is sometimes called the "lottery" effect in that investors know there is a high probability that they will lose all of their investment but they are willing to undertake the investment in the hope they will receive the high payoff even though the odds of doing so are very, very small.

Bankruptcy or failure situations may also cause the investor (entrepreneur) to choose the riskier investment. For example, let's assume that you will need $3,500 in order to keep your business afloat. Since only the riskier second investment has the possibility of paying at least $3,500, the second investment might be selected.

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D. An outside venture investor is considering investing $100,000 in either your new venture or in another venture, or invest $50,000 in each venture. At the end of one year, the value of the venture might be either $0 or $1,000,000. The other venture is expected to be worth either $50,000 or $500,000 at the end of one year. Which investment choice (yours, the other venture, or half-and-half) do you think the venture investor would choose to invest in? Why?

	Low Result	High Result	Expected Value
Your venture:	$0	$1,000,000	($0 + $1,000,000)/2 = $500,000
Other venture:	$50,000	$500,000	($50,000 + $500,000)/2 = $275,000
Half-and-half:	$25,000	$750,000	($25,000 + $750,000)/2 = $387,500

Under the half-and-half alternative, $50,000 is invested in each venture. The low result outcome is $25,000 ($0 + $25,000) and the high result outcome is $750,000 ($250,000 + $500,000).
In actuality there are two more possible outcomes under the half-and-half alternative. They are: $250,000 ($0 + $250,000) and $525,000 ($25,000 + $500,000). Thus, the more complete half-and-half calculation would be: ($25,000 + $250,000 + $525,000 + $750,000)/4 = $387,500.

A venture investor who is not very risk averse might choose your venture to invest in since there is a possibility of receiving $1,000,000 in return for putting up $100,000. Of course, such an investor could lose all of his/her investment if the low result occurs. A more risk averse venture investor might choose to invest in only the other venture where he/she could lose only $50,000 of the $100,000 investment if the low result occurs with the possibility of receiving a maximum of $500,000 if the high result possibility occurs.

By combining the two venture investments in a "portfolio," the result is often less dispersion risk. In the above example, the lowest amount returned would be $25,000 (instead of zero for just your venture). However, the highest amount returned also would be lower at $750,000 (instead of the possibility of $1,000,000 for your venture). The final decision will depend on the venture investor's willingness to trade off a lower expected return for less dispersion risk.

5. [Ethical Issues] Assume that you have been working on a first-generation "prototype" for a new product. An angel investor is waiting in the "wings" wanting to invest in a second-generation model or prototype. Unfortunately you have run out of money and aren't able to finish the initial prototype. The business angel has previously said that she would "walk" if you cannot produce a working first generation prototype.

A. What would you attempt to do to "save" your entrepreneurial venture?

Many entrepreneurs state that high ethical standards are one of a venture's most important assets and are critical to long-term success and value. Taking the time and

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money to invest in the venture's character will help ensure that it is an asset rather than a liability. Most would agree that the proper course of action would be one of being honest up front. That is, inform the business angel that you are out of money and thus can't finish the initial prototype. If this causes the business angel to "walk," so be it. Of course, the first order of business is to secure necessary financing to complete the initial prototype.

B. Now let's assume that the angel investor will advance you the financing needed for the second-generation prototype based on your "word" that the first-generation prototype has been completed and is working? What would you do?

The situation has not changed from the suggested actions noted in Part A. Inform the business angel that the initial prototype has not yet been completed because you are out of money. Being honest up front is likely to be in the best interests of the venture (and entrepreneur) in the long-run. Confidence and trust in you (the entrepreneur) by the business angel will be in the best interests of a successful working relationship over time.

SUPPLEMENTAL EXERCISES/PROBLEMS AND ANSWERS

[Note: These activities are for readers who have an understanding of financial statements. Accountants record the flow of revenues and expenses over a time period such as a year in the income statement. Accounts also record the amount in asset accounts at the end of each accounting period in the balance sheet. For readers who need to review basic financial statements, the following problems can be completed after the materials in Chapter 4 have been covered.]

6. [Costs or Expenses] Phil Young, founder of Pedal Pushers, expects to spend the next one-half year developing and testing prototypes for a pedal replacement for children's bicycles. (See Part A of Problem 1 for a description of the proposed product.) Phil anticipates paying monthly rent of $700 for space in a local warehouse where the Pedal Pusher product will be designed, developed, and tested. Utility expenses for power and heat are estimated at $150 per month. Phil plans to "draw down" a salary of $1,000 per month. Materials needed to build and test an initial prototype product are expected to cost $9,500. In addition, each redesign and new prototype will require an additional $4,500 investment. Phil anticipates that before the final Pedal Pusher is ready for market at the end of six months, the initial plus two more prototypes will need to be built and tested. Costs associated with test marketing the Pedal Pusher are estimated at $7,000.

A. Determine the amount of financial capital that Phil Young will need during the six-months it will take to develop and test market the Pedal Pusher.

Monthly Expenses:		
Rent	6 months x $700 =	$4,200
Utilities	6 months x $150 =	$ 900

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Salary	6 months x $1,000 =	$6,000
One-Time Expenses:		
Original Prototype		$9,500
Redesign Prototypes	2 x $4,500 =	$9,000
Test Marketing		$7,000
Total Expenses (Required Capital)		$36,600

B. *What type of financial capital is needed and what are the likely sources of that capital for Phil Young?*

The venture is in the development stage since it is still developing the product via prototypes. Therefore, it would be searching for seed financing as its source of capital, which will most likely be obtained through the entrepreneur's assets, family, or friends.

C. *What would be your estimate of the amount of financial capital needed if the product development period lasted nine months?*

The total expenses would be the $36,600 as in (A) plus an additional three months of expenses:

Additional Expenses:		
Rent	3 months x $700 =	$2,100
Utilities	3 months x $150 =	$ 450
Salary	3 months x $1,000 =	$3,000
		$5,550

Total Nine-Month Expenses (Capital Needed): $36,600 + $5,550 = $42,150

D. *What compensation arrangements would you recommend as he hires additional members of the management team?*

Typically he would want to provide some base salary to provide normal living expenses plus an incentive compensation package in options or stock ownership that would be tied to the venture's progress and profitability.

7. *[Expenses and Revenues] Let's assume that Phil Young does indeed develop and successfully market the Pedal Pusher product discussed in Problems 1 and 6. Phil's venture will purchase materials for making the product from others, assemble the products at the Pedal Pusher venture's facilities, and hire product sales representatives to sell the Pedal Pushers through local retail and discount stores that sell children's bicycles. The costs of plastic pedals and extensions; bolts, washers, and nuts; reflective material; and a "micro-chip" to provide the "music" when the bicycle is pedaled are expected to be $2.33 per pair of Pedal Pushers. Assembly costs are projected at $1.50 per pair. Shipping and delivery costs are*

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estimated at $.20 per pair or set and Phil Young will have to pay commissions of $.30 per pair of pedals sold to the sales representatives.

A. *What will it cost to produce and sell a pair of Pedal Pushers?*

Unit Costs:	
Materials	$2.33
Assembly	$1.50
Shipping	$0.20
Commission	$0.30
Total Unit Costs	$4.33

B. *What price will Phil Young have to charge for a pair of Pedal Pushers if he wants a "markup" of 50 percent on each sale? Now, what would the retailers have to ultimately sell a pair of Pedal Pushers for if they, in turn, desired a mark-up before their expenses of 40 percent?*

Phil Young's sale price to achieve a 50% markup would need to be $6.50 because $4.33 x 1.50 = $6.495 and prices are quoted in dollars and cents (not fractions of cents).

The retailers sale price to make a 40% markup is ($6.50) x (1.40) = $9.10.

C. *Now that Pedal Pushers is up and operating, Phil Young feels he should be paid a salary of $5,000 per month. Other administrative expenses will be $2,500 per month. How many units (pairs) of Pedal Pushers will the venture have to sell to cover all operating and administrative costs during the first year of operation?*

Unit contribution before additional expenses = $6.50 – $4.33 = $2.17

Fixed Expenses:		
Salary	12 months x $5,000	$60,000
Administrative	12 months x $2,500	$30,000
		$90,000

Units needed to be sold to reach breakeven:
= (Fixed Expenses)/(Contribution Per Unit)
= ($90,000)/($2.17)
= 41,474.65 units (or 41,475 after rounding up to the next highest unit)

To check that this is breakeven, note that:
Revenue – Variable Cost – Fixed Cost = Profit.

In this problem, we have:
(41,474.65 x $6.50) – (41,474.65 x $4.33) - $90,000 = $269,585 – 179,585 - $90,000 = 0.0. This is the smallest amount of units that does not result in a loss.

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MINI CASE: INTERACT SYSTEMS, INC.

Interact Systems, Inc. has developed software tools that help hotel chains solve application integration problems. Interact's Application Integration Server (AIS) provides a two-way interface between central reservations systems (CRS) and property management systems (PMS). At least two important trends in the hotel industry are relevant. First, hotels are shifting away from the manual booking of room reservations and electronic bookings will continue to increase as more bookings are made over the Internet. Second, competitive pressures are forcing hotels to implement yield management programs and to increase customer service. By integrating the CRS and PMS through Interact's AIS, inventories can be better managed, yields improved, and customer service enhanced.

All reservation traffic is routed from the CRS to individual hotel properties. This allows Interact Systems to create a database that can be used to track customers and to facilitate marketing programs, such as frequent stay or VIP programs, as a way of increasing customer satisfaction. Interact forecasts application integration expenditures in the hospitality industry exceeding $1 billion by 2022.

Greg Thomas founded Interact Systems in 2016 and developed the firm's middleware software and hospitality applications. He has twelve years of systems applications experience and currently is Interact's Chief Technology Officer. Eric Westskow joined Interact in early 2019 as President and CEO. Prior to that time, he worked in sales and marketing in the software industry for more than twenty years.

Interact Systems' AIS software development which began in 2016 went through several design changes in 2017. The first product was sold and installed in 2018. Sales were only $500,000 in 2018. However, now that the firm has dependable market-tested AIS products ready to be shipped, revenues are expected to reach $20.8 million in 2022.

Greg Thomas founded Interact Systems with $50,000 of his own savings plus $50,000 from friends. Two private investors provided an additional $200,000 in 2017. In addition, $1 million was obtained from a venture capital firm, Katile Capital Partners, in early 2019 in exchange for an equity position in Interact. The firm currently is seeking an additional $5 million to finance sales growth.

A. Verify the two important trends that are developing in the hotel industry.

1. Hotels are shifting away from the manual booking of room reservations to electronic bookings. This trend will continue to increase as more bookings are made over the Internet.
2. Competitive pressures are forcing hotels to implement yield management programs and to increase customer service.

B. Describe how Interact Systems' AIS software products are to benefit the hotel industry from a profitability standpoint.

Interact's Application Integration Server (AIS) provides a two-way interface between central reservations systems (CRS) and property management systems (PMS). By integrating the CRS and PMS through Interact's AIS, inventories can be better managed, yields improved, and customer service enhanced.

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C. *Describe how Interact Systems' AIS software is to help hotels improve customer satisfaction.*

All reservation traffic is routed from the CRS to individual hotel properties. This allows Interact Systems to create a database that can be used to track customers and to facilitate marketing programs, such as frequent stay or VIP programs, as a way of increasing customer satisfaction.

D. *Describe the life cycle stages that Interact Systems has progressed through to date.*

Interact Systems' AIS software development which began in 2016, went through several design changes in 2017 (development stage). The first product was sold and installed in 2018 and sales were $500,000 in 2018 (startup stage). However, now that the firm has dependable market tested AIS products ready to be shipped, revenues are expected to reach $20.8 million in 2022 (survival stage and possibly rapid growth stage).

E. *What types of venture financing have been obtained, or are being sought, by Interact?*

Seed Financing: Greg Thomas founded Interact Systems in 2016 with $50,000 of his own savings plus $50,000 from friends. Two private investors provided $200,000 in 2017.

Startup Financing: $1 million was obtained from a venture capital firm, Katile Capital Partners, in early 2019 in exchange for an equity position in Interact.

First-Round Financing: The firm currently is seeking an additional $5 million to finance sales growth.

F. *Relate major sources or players with the venture financing described in Part E.*

Major sources or players include:
2016: Entrepreneur's assets ($50,000) and friends' assets ($50,000).
2017: Two private investors (business angels) provided $200,000.
2019: Venture capital (Katile Capital Partners) provided $1 million.

G. *What types of agency problems or conflicts should the founding entrepreneur have anticipated?*

Agency relationships arise when principals hire agents to perform specified activities or services. Businesses are involved in two potentially conflicting relationships: (1) owner-manager conflicts and (2) manager-debtholder conflicts. At this time, the founding entrepreneur, Greg Thomas, does not have to worry about manager-debtholder conflicts. He, or the other equity investors, could have a possible owner-manager conflict with Eric Westskow who joined Interact in 2019 as president and CEO. Greg Thomas also could have possible conflicts with some or all three groups of investors (friends, business angels, and venture capitalists) if they believe he is not managing the venture in their best interests as investors.

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H. What, if anything, should the founding entrepreneur have done in anticipation of agency conflicts?

In order to minimize a possible owner-manager conflict, the president and CEO, Erick Westskow, when hired in 2019 should have been given an equity stake in Interact so as to align his personal goals with the financial goal of maximizing the value of the venture.

I. Assuming the venture succeeds, what are the potential advantages to other stakeholders (customers, employees, and society more broadly)?

The goal of maximizing the entrepreneurial venture's value is not inconsistent with ethical behavior in business practices. Actions by entrepreneurs to increase the value of their ventures also can be consistent with the good of society. Customers benefit from the development of new ideas, products, and services. Employees benefit through stable employment, salary increases, and possibly from increased insurance, medical, and retirement benefits. Society benefits from higher employment levels and higher gross national product, as well as possibly through charitable contributions and other forms of venture philanthropy.

J. If internal sales growth projections are revised downward after the current financing round, what, if any, disclosure to stakeholders (investors, employees, customers, etc.) should occur? Why?

The entrepreneur-manager has the responsibility to inform investors in a timely and transparent manner about changing conditions or other factors (such as lower sales growth projections) that will lead to lower valuations. Other stakeholders should also be informed in a timely fashion if and when they may be affected. For example, if slower sales growth is expected to result in layoffs or fewer working hours, it is important to notify affected employees in a timely fashion. Customers should also be notified in a timely manner if and when product or service support is likely to be affected from a slow down in sales growth.

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