KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY

ZAGADNIENIA INNOWACYJNOŚCI FUNKCJONOWANIA SYSTEMU BADANIA + ROZWÓJ W NAUCE

Redaktor naukowy
ANTONI MIKLEWSKI

Tom I

Projekt: „INNOWACYJNE ZARZĄDZANIE SYSTEMEM B+R W JEDNOSTKACH NAUKOWYCH"
jest współfinansowany ze środków Unii Europejskiej w ramach Europejskiego Funduszu Społecznego
4.2. "Rozwój kwalifikacji kadr systemu B+R i wzrost świadomości roli nauki w rozwoju gospodarczym"

Wyższa Szkoła Informatyki Stosowanej i Zarządzania, 01-447 Warszawa, ul. Newelska 6, tel.: 22 3486523

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Książka współfinansowana ze środków Unii Europejskiej w ramach Europejskiego Funduszu Społecznego.

Projekt Programu Operacyjnego Kapitał Ludzki.

„Innowacyjne zarządzanie systemem B+R w jednostkach naukowych"

Priorytet IV Szkolnictwo Wyższe i Nauka.

Działanie 4.2. Rozwój kwalifikacji kadr systemu B+R i wzrost świadomości roli nauki w rozwoju gospodarczym.

Podnoszenie umiejętności pracowników systemu B+R w zakresie zarządzania badaniami naukowymi i pracami rozwojowymi oraz komercjalizacji rezultatów prac badawczych – w tym również w zakresie ochrony własności intelektualnej i przemysłowej.

Projekt POKL.04.02.00-00-059/08

Recenzenci:

Prof. zw. dr hab. inż. Jan Studziński

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Egzemplarz bezpłatny

ISBN 83-894-7542-1
EAN 9788389475428

Artykuły gości zagranicznych

Assessing an entrepreneur's strengths and weaknesses

June Lavelle
Lavelle & Associates, Inc., USA

Introduction

There are many things that can contribute to the failure of a business, such as not enough capital, not enough basic knowledge of the business or not filling a unique need. More often than not, it is an entrepreneur's personal shortcomings that prevent him or her from succeeding. The inexperienced entrepreneur often thinks that he or she can "do it all" in order to be successful. Many entrepreneurs learn the hard way that not only is this not humanly possible in today's complex business world, but coming to this realization too late can be the primary cause of business failure. Some of the best advice for growing a successful business is:

1. Do what you know and do best build on your specialized knowledge and experience. Surround yourself with people who complement your strengths and shore up your weaknesses

In other words, "know thyself and take action on that knowledge." How can you assess your strengths and weaknesses? Here is an informal checklist that I have successfully used in my consulting practice as a tool to help determine how best to assist in the development of a client's business.

There are two major aspects to the evaluation – the entrepreneur and the business. For each category, I try to determine if knowledge, experience, or understanding is less than adequate, adequate, or more than adequate. I try to take a careful inventory of the client's personal traits and the circumstances of their life and business and then design a workplan to address those areas that are critical weaknesses.

This assessment checklist can also help you to have a better understanding of how bankers, potential investors, management consultants and other service providers may evaluate you and your business.

2. The entrepreneur's general business experience

- **Expertise.** Does the entrepreneur have any relevant training or experience in the following key areas:
  - Sales/Marketing,
  - Technical/Operations,
  - Financial/Management.

Work History. Does the entrepreneur have any work experience in the business or industry that he or she is going into and/or background that translates well to the specifics of the target industry?

3. The entrepreneur's attitude and temperament

- **Has Achievement Orientation.** The entrepreneur should be enthusiastic about being in business, determined to succeed and full of realistic ideas on how to achieve success. Does the entrepreneur understand what it takes to achieve a difficult goal? Can he or she relate any personal experience that required persistence and perseverance **Pays**.
- **Attention to Detail.** An entrepreneur should be able to articulate his or her business, to say what it is they intend to do. If they only speak in vague generalities, then they haven't given the topic much real thought and are probably not connected to reality.
- **Demonstrates Fiscal Discipline.** People who understand that the whole idea of business is to keep more money in their pocket, as opposed to spending it, know what it takes to run a business. Often it's not how much capital an entrepreneur has, but what they intend to do with it that matters.
- **Shows Optimism Balanced with Objectivity.** Is the person a dreamer or can he or she evaluate the risks about to be undertaken? People launch businesses with the expectation that their businesses will soar just as soon as they open their doors. But that's not how companies grow. The process is so much slower. It takes a year or so to begin to really generate sales, and in the meantime, all of their money will be flowing out. While it's important to be upbeat, they also must be objective enough to understand that they should hedge their bets and do everything that they can to

reduce costs. They will need to look for ways to save money, like leasing equipment instead of buying it.

- **Has People Orientation.** Most businesses are usually so small that the entrepreneur has to be the sales force. If he or she can't relate to other people well, then there is a serious gap in the business. Maybe we've got to find someone for the company who can sell, because a business without sales is not going to be a business for very long.
- **Recognition of Limitations.** The majority of people who start their own business believe that they are infallible. They are often not open to outside advice. That attitude is likely to seal their demise. Recognition of limitations is important because in order to survive, you must understand what you can't do, and then delegate that to someone else. If the entrepreneur says, "I can do this all. I have no limitations, and, of course, I am smarter than absolutely everybody else – every lawyer, every banker, every financial advisor, every consultant," his or her chances of survival have plummeted.
- **Willing to Work Long Hours.** A research project of the U.S. Department of Commerce surveyed entrepreneurs for characteristics that contributed to their success. The number of hours devoted to the enterprise was as important for success as capital. What a shocking statistic! An entrepreneur must understand that he or she will be making many personal sacrifices, not the least of which is time with his or her family. The entrepreneur must also have the physical stamina to work long hours.
- **Possesses a Problem-solving Mentality.** The entrepreneur needs to be able to identify problems, face them, and come up with solutions. The ability to think creatively will go a long way towards contributing to the firm's survival.
- **Willing to be Flexible.** Can the entrepreneur anticipate change and be flexible enough to respond quickly to new situations. We often have clients who have developed business plans and then follow their plans like Lemmings into the sea even when circumstances have changed which clearly call for revising the underlying assumptions. An entrepreneur's response time is often critical to survival.

4. Personal financial capacity

- **Can Contribute Financially.** Does he or she have hidden resources? Is there a life insurance policy? Is the spouse employed? If not, maybe they should become employed. These hidden assets contribute to the entrepreneur's capital capacity. When times are tough and costs have to be reduced, the first person who is going to go without a paycheck or take a cut in pay will usually be the owner of the business. With the spouse working, this is at least an option. I had an older client who was in financial trouble. I suggested his wife get a job and he said she was already baby-sitting for their daughter. I said, "What about charging your daughter for that baby-sitting?"

- **Willing to Continue Present Job.** There are a number of entrepreneurs, particularly in craft-type businesses such as wood-working, that start-up business while still working full-time jobs. I often tell this type of client to not quit his job right away. An example was an entrepreneur who set up production facilities in his home for a part-time business. He was making $40,000 plus per year at his regular place of employment and had a wife and two young children. His wife did not work. The business began to grow, he rented production space, and of course, he was working himself to death. Nevertheless, he began to have significant success. Once his sales reached $125,000, which figured would be more than adequate to pay him a salary, he wanted to quit his regular job. Even though his lifestyle was modest, he still could not afford to quit his job. A cashflow analysis indicated that he wouldn't be able to do so until his sales reached at least $175,000. He complained to me, "I'm working 19 hours a day." I said, "You have no choice. If you could just hang on physically for five more months, I think you can do it. But to quit that job now and try to take an equivalent salary would be the death of your business." This guy thought I was crazy. Nevertheless, he did not quit the job, and we were able to incrementally build the company up. In five months, he was able to retire the debt on a piece of equipment. That made a huge difference in his cashflow, which enabled him to quit his job and work full-time on his business.
- **Has Family Willing to Withstand Some Austerity.** If the family's spending can be reduced, there's more available capital for the business. Sacrifices aren't just economic. Because of the long and stress-filled hours spent on running a business, the entrepreneur will have little time or energy for anything else. It is always advisable to meet with the spouse to discuss some of the realities associated with starting-up and running a business. The family needs to understand that if they are supportive, the chances for success increase.

5. The state of the business

Quite often the entrepreneur has not thoroughly thought through many of the issues confronting his or her business and will not know the answers to some very basic questions. What's really important in your preliminary discussions with a prospective client is whether the person tries to color his or her answers. Are they being honest with you and more importantly, are they being honest with themselves?

- **Product and Service Specifications.** Can the entrepreneur clearly and with sufficient detail describe the product or service to be offered? Is it reasonable to assume that there would be sufficient demand for such an offering?
- **The Industry.** Is the industry economically healthy? Is there a positive forecast? Is it sensitive to economic fluctuations?
- **The Market.** Is the market growing, shrinking or remaining stable? What customers are the primary sources of sales and revenues? How well are the niches of the business defined? Is the product or service needed in the community? Is it competitive? Is the company going to be dependent upon certain customers? What is the market potential of each sector?
- **Competition.** Is the competitive environment basically hostile or passive – that is, to what extent is the company in direct or indirect competition with other companies? Do one or two competitors dominate the market or are market shares widely distributed, making it easier to get a foothold? Is there a competitor with deep pockets that can drive the entrepreneur out? How do competitors react to specific market developments? Are they leaders or followers? How have the competitors responded to changes in the market in the past?
- **Technology.** Are there any technological changes that will effect costs and competitiveness? What technologies does the entrepreneur plan to make use of in his or her new business?
- **Marketing and Sales Strategy.** Can the entrepreneur describe why the product or service will satisfy the needs of the customers better than the competition? What is the outreach strategy? How effective are the company's marketing and sales efforts and why? What sales experience does the entrepreneur have and is he or she willing to get out and sell?
- **Pricing and Margins.** Is the product or service well priced? How does the pricing compare with the industry? What are the expected relationships between sales volume and sales revenue for the company's major product or service lines? Is there any indication of downward pressures on prices? What are the anticipated margins and how were they calculated?
- **Purchased Materials Sources and Costs.** Who are the major suppliers and are there any alternative suppliers? Does the

entrepreneur have a strong relationship with his or her vendors? By what percentage and over what period of time has the cost of supplies been escalating?

- **Labor Force and Compensation Rates.** Describe the level of skills required in the company's production process, (unskilled, specialized, skilled, technical, or professional). What is the minimum number of people required for production? What is their salary or hourly rate and average hours worked per week? Are part-time personnel available? What additional expenses does the entrepreneur have related to the above personnel? Are personnel hard to find, retain or train? How are the employees managed?
- **Operating Overhead by Type of Expense.** What expenses are included in the general and administrative costs? What overhead expenses are included in the manufacturing overhead? How is the accounting of costs handled? Who is actually responsible for the set-up and operation of the accounting system?

6. Reality check of capitalization needs

In addition to having the personal qualities that lead to success and knowing something about the business that he or she is going into, entrepreneurs must have a realistic grasp of their capitalization needs. Here is a checklist to help assess and prepare a small business client.

Examine Space Requirements. Try to be accurate in terms of need because the cost of moving is great in terms of both time and money. Build in a margin for any short-term growth that is likely to take place, but be conservative. Often, entrepreneurs worry that they're going to outgrow their leased space so they ask for five times more than they need. Waste just burns money. It is important to maximize the utilization of everything: space, equipment, personnel, and capital. It is important to discriminate between wants and needs.

- **Encourage a Lean Equipment Budget.** Tend towards a lean equipment budget particularly in the early stages of the enterprise. New business people will say, "I have to do this with maximum efficiency." Well, *maximum* efficiency costs money and often the efficiency gained does not make a financial impact until volume reaches a certain level. So I'd say, "Let's just set aside the idea of maximizing efficiency for a little while. Let's think about the minimum we can get by with, and we'll worry about improving efficiency when we have enough sales to justify purchasing equipment." It's easier to convince a bank to lend for the acquisition of a new piece of equipment when you can demonstrate that the increased efficiency results in increased profitability.

- **Scrutinize Start-up Costs.** What costs has the entrepreneur taken into consideration? They often fail to include the cost of adequate insurance coverage or compliance with regulatory requirements such as fire protection, worker health and safety regulations, mandatory payroll costs, and so forth.
- **Assess the Entrepreneurs' Cost-accounting Skills.** Many seasoned business people, let alone inexperienced entrepreneurs, do not have a handle on their costs and do not set-up their accounting systems to help track costs. It's amazing how many entrepreneurs do not understand that when sales increase, certain overhead expenses increase, as well as their unit costs. Too often, accountants generate financial statements that are adequate for filing tax returns, but reveal little information for financial planning purposes. Planning must be done monthly on system that can transform data into information, which then can be regularly analyzed for budgeting and planning purposes.
- **Study Revenue Projections.** Many of the firms which I have counseled were combination contract job shops and production companies – that is, a firm would derive a portion of its revenue from the production and sale of a proprietary product and the balance of its revenue from custom work. This mix not only makes the financial projections rather complex, but for start-up and early-stage businesses there are too many uncertainties to forecast much beyond the orders in-hand. Therefore, I recommend that for these kinds of businesses, the entrepreneur focus on creating a short term (4-6 week) financial forecast based upon what is actually happening in the business and update it weekly as new information becomes available.
- **Discuss the Entrepreneur's Financing Plans.** People think in terms of money, as if time were stagnant. One of the saddest things that I have seen – which is often encouraged, particularly by government subsidy programs – is borrowing relatively large sums for a new business. It's difficult for me to imagine why someone would want to take on a debt burden like that for a new business, particularly when they're still not sure that the product has market acceptability, it's selling at the right price, or it can be produced at the right cost. I usually recommend that the entrepreneur finance incrementally: small amounts at higher interest for short periods while you grow the business and defer a permanent capital search until such time that the underlying assumptions are more than just wild guesses.
- **Discuss Growth Plateaus and Time Frames.** Early profitability (or loss) experience may not be a measure of what will happen at the

next growth plateau. Does the entrepreneur have "the right stuff" to manage growth and what conditions exist that will impact profitability (e.g., volume pricing, capital equipment requirements, overhead growth, and so forth)?

- **Analyze the Entrepreneur's Profitability Outlook.** Many new entrepreneurs expect to be profitable right away. Rarely is a business profitable in the first year. If the cashflow projections indicate profitability in the first year, it's a red flag that there's probably something wrong with the entrepreneur's assumptions.
- **Understand the Entrepreneur's Growth Targets.** Many people are motivated to grow a business only to the point that it generates enough income to satisfy their desires for a particular lifestyle. When their optimum lifestyle is attained, they simply run out of steam. There is nothing wrong with this kind of a decision, but it is important to understand the entrepreneur's goals and objectives from the start.

Od Redaktora Naukowego i Kierownika Studiów Podyplomowych

Projekt realizowano w ramach Programu Operacyjnego Kapitał Ludzki, Priorytet IV "Szkolnictwo wyższe i nauka", działanie 4.2 "Rozwój kwalifikacji kadr systemu B+R i wzrost świadomości roli nauki w rozwoju gospodarczym". Umowa nr UDA.POKL 04.02.00-00-059/08-00, projekt "Innowacyjne zarządzanie systemem B+R w jednostkach naukowych" w latach 2009-2011. W ramach projektu odbyły się 4 edycje studiów podyplomowych dla pracowników jednostek naukowych – 77 słuchaczy, 6 edycji szkoleń – 111 słuchaczy. Grupa docelowa obejmowała pracowników naukowych uniwersytetów, politechnik, instytutów Polskiej Akademii Nauk, państwowych instytutów badawczych, jednostek badawczo-rozwojowych i innych jednostek naukowych z całej Polski, w tym z Warszawy, Krakowa, Wrocławia, Poznania, Gdańska, Gdyni, Szczecina, Pszczyny, Częstochowy, Płocka, Radomia i Rzeszowa.

Zorganizowanie Studiów Podyplomowych przez Wyższą Szkołę Informatyki Stosowanej i Zarządzania w Warszawie dla pracowników sektora nauki, w szczególności szkół wyższych i instytutów naukowych w końcu I dekady XXI wieku z zakresu problematyki B+R, to jest działalności badawczej (*research*) i prac rozwojowych (*development*), jako działalności wzajemnie związanej, co w skrócie oznacza B+R, w warunkach bardzo skromnych funduszy na tę działalność ze strony budżetu państwa, jeszcze mniejszych funduszy z gospodarki polskiej oraz firm zagranicznych działających w Polsce, a także dalece niewystarczających funduszy unijnych przeznaczonych na B+R, było bardzo ryzykowne zarówno jeżeli chodzi o rekrutację słuchaczy, jak i skupieniu wokół studiów podyplomowych odpowiedniego kapitału intelektualnego, w tym w postaci wykładowców krajowych i zagranicznych, zarówno praktyków, ekspertów z obszaru działalności B+R, jak i profesorów polskich z dużym doświadczeniem z zakresu B+R w Polsce, ale także zagranicą, w tym w międzynarodowych instytutach B+R. Okazało się jednak, że popyt na studia podyplomowe z tej problematyki istnieje i że zainteresowanie problematyką B+R może wynikać z nadziei, że Polska, jako członek Unii Europejskiej w przyszłości powróci do grupy krajów na świecie, które przeznaczają więcej niż 2% PKB na B+R.

Zatwierdzenie przez Rząd raportu pt.: Polska 2030 w 2009 roku, to znaczy już w czasie drugiego światowego kryzysu w sektorze finansów, dawało podstawę do takiego optymizmu.

Dzisiaj w końcu 2011 roku, gdy druga faza drugiego kryzysu światowego zaatakowała kilka krajów Unii Europejskiej rząd Polski przesunął wizje Polski 2030 na wizję lat 2040-2050.

Uruchomienie omawianych Studiów Podyplomowych wymagało skupienia wokół nich ekspertów z dużą praktyką, nie zapominając jednak o ekspertach z zakresu statystyki, *foresightu*, itp.

Słuchacze studiów podyplomowych mieli bezpośredni kontakt z wybitnymi teoretykami i praktykami – znawcami problematyki B+R oraz społeczeństwa informacyjnego i nowej cywilizacji wiedzy.

Studenci studiów podyplomowych mieli możliwość aktywnie uczestniczyć w seminariach i konferencjach z udziałem ekspertów i naukowców zagranicznych. W celu szerszego upowszechnienia bardzo cennej autorskiej wiedzy, przedstawiamy autorską książkę z szeroko rozumianej problematyki B+R.

Opinie i wiedza wyrażone w poszczególnych rozdziałach są opiniami i wiedzą osobistą autorów, a nie Wyższej Szkoły Informatyki Stosowanej i Zarządzania w Warszawie.

Uzupełnieniem tej pozycji książkowej są dwa tomy poświęcone szeroko rozumianej tematyce B+R będące wynikiem zrealizowanych czterech edycji studiów podyplomowych w Wyższej Szkole Informatyki Stosowanej i Zarządzania (WSISiZ) w Warszawie pod auspicjami Polskiej Akademii Nauk. Wydanie tych trzech dodatkowych publikacji w ramach projektu PO KL pt.: „Innowacyjne zarządzanie systemem B+R w jednostkach naukowych" było możliwe dzięki finansowemu wsparciu Unii Europejskiej w ramach Europejskiego Funduszu Społecznego.

Poszczególne tomy zawierają następujące rozdziały napisane przez profesorów/wykładowców/ekspertów współpracujących przy realizacji ww. projektu PO KL oraz Uczestników Projektu będących słuchaczami studiów podyplomowych pt.: „Innowacyjne zarządzanie systemem B+R w jednostkach naukowych" zrealizowanych w WSISiZ w latach 2009-2011 w ramach projektu PO KL pod tym samym tytułem:

Tom 2. Zagadnienia innowacyjności funkcjonowania systemu „Badania + Rozwój" w nauce

Od Redaktora. *A. Miklewski.*

Złożoność a rozwój społeczeństw. *J. Kozłowski.*

Konsekwencje popytu na wiedzę: przestrzeń twórcza i mikro-modele kreowania wiedzy. *A.P. Wierzbicki.*

Tom 3. Innowacyjne zarządzanie systemem „Badania + Rozwój" w jednostkach naukowych

Kierownik-koordynator projektu

dr inż. Antoni Miklewski

Wyższa Szkoła Informatyki Stosowanej i Zarządzania w Warszawie, pod auspicjami Polskiej Akademii Nauk

Instytut Podstaw Informatyki Polskiej Akademii Nauk

Warszawa, grudzień 2011

Działanie 4.2: Rozwój kwalifikacji kadr systemu B+R i wzrost świadomoś gospodarczym. Podniesienie umiejętności pracowników systemu B+R w zakres naukowymi i pracami rozwojowymi oraz komercjalizacji rezultatów prac bada w zakresie ochrony własności intelektualnej i przemysłowej.

Projekt POKL.04.02.00-00-059/08:
Innowacyjne zarządzanie systemem B+R w jednostkach naukowych.
Projekt wpisuje się w realizację unijnej strategii wzrostu Europa 2020.

W zmieniającym się świecie UE potrzebna jest inteligentna i zrównoważona gospodarka sprzyjająca włączeniu społecznemu.

Inteligentny rozwój oznacza uzyskanie lepszych wyników w dziedzinie:
- **edukacji** (zachęcanie do nauki, studiów i podnoszenia kwalifikacji),
- **badań naukowych/innowacji** (stworzenie nowych produktów i usług, które wpłynęłyby na zwiększenie wzrostu gospodarczego i zatrudnienia oraz pomogłyby w rozwiązywaniu problemów społecznych),
- **społeczeństwa cyfrowego** (wykorzystanie technologii informacyjnych i komunikacyjnych).

Unijne cele służące zapewnieniu inteligentnego rozwoju obejmują:

1. zwiększenie łącznego poziomu **inwestycji publicznych i prywatnych do wysokości 3 proc. unijnego PKB**, a także zapewnienie lepszych warunków dla badań i rozwoju oraz innowacji,
2. **podwyższenie wskaźnika zatrudnienia kobiet i mężczyzn w wieku 20–64 lat do 75 proc.** do 2020 r. poprzez wprowadzenie większej liczby osób na rynek pracy, zwłaszcza kobiet, młodzieży, osób starszych, pracowników niskowykwalifikowanych i legalnych imigrantów,
3. zapewnienie lepszego poziomu wykształcenia – zwłaszcza:
- sprowadzenie **odsetka młodych ludzi przedwcześnie porzucających naukę do poziomu poniżej 10 proc.**,
- dążenie do tego, by co najmniej **40 proc. osób w wieku 30–34 lat miało wykształcenie wyższe** (lub równoważne).

Wniosek z artykułu K. Lityńskiego (Tom 1, str. 67):

Polityka zwiększania innowacyjności, która decyduje o konkurencyjności całej gospodarki, nie może podlegać nieskoordynowanym, a często wykluczającym się inicjatywom poszczególnych ministerstw.

Polityka proinnowacyjna nie polega jedynie na szybkim wydatkowaniu wszystkich dostępnych środków unijnych pod hasłem „innowacja", lecz także na wytyczaniu i monitorowaniu kierunków i problemów, które powinny być rozwiązane w skali kraju i poszczególnych regionów.

Idea utworzenia platformy koordynującej działania proinnowacyjne rządu i jego agend nie jest nowa, jako koncepcja Krajowego Systemu Innowacji wydaje się obecnie ze wszech miar na czasie.

ISBN 83-894-7542-1
EAN 9788389475428

INSTYTUT BADAŃ SYSTEMOWYCH
POLSKIEJ AKADEMII NAUK