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Women in Technological and Scientific Entrepreneurship

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Encouraging Women's Entrepreneurship at the Technion and Beyond

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Executive summary

Entrepreneurship is important to economic development. The benefits to society will be greater in economies where entrepreneurs can operate flexibly, develop their ideas and reap the rewards. Entrepreneurs are innovative. They operate under uncertainty, recognize opportunities, manage their business and compete with others for a share of the market. Entrepreneurs, creators of new firms, are a rare species. Even in innovation-driven economies, only 1–2% of the work force initiates a business in any given year. Yet entrepreneurs, particularly innovative entrepreneurs, are vital to the competitiveness of the economy and may establish new jobs (Kritikos, 2014).

Research goals:

This research identifies obstacles that prevent women from becoming involved in entrepreneurship in research and technology and suggests ways to increase women's participation in entrepreneurial activities, not only at the Technion, but beyond. The two research questions posed are:

How can we identify the obstacles to more women becoming involved in entrepreneurial activities and what is necessary to accomplish this goal?

What steps are necessary to carry out a pilot program that could alter the dynamics?

Methodology:

Carrying a review of the literature on the Israeli scientific and technological entrepreneurial ecosystem and women's participation in it. The review includes comparison between Israeli women's involvement in technological entrepreneurial activities and involvement of women in technological entrepreneurial activities in other countries.

Carrying a review of the literature on obstacles that prevent more women from becoming involved in entrepreneurial activities, and case studies of programs designed to change the dynamics both in Israel and in other countries.
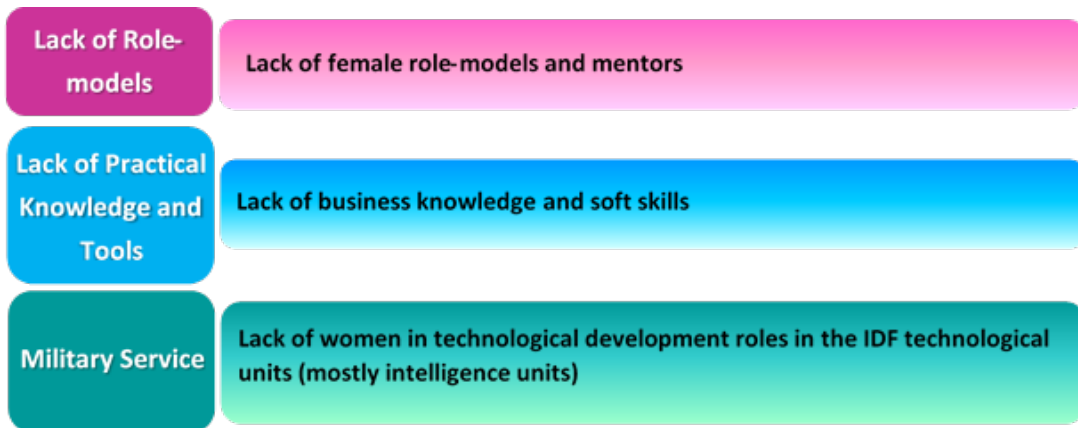
Carrying in-depth interviews with 44 expert stakeholders from across the Israeli technological ecosystem: Entrepreneurs, Academic researchers, Academic administration, Students' representatives, Industry, Government agencies. A semi-structured questionnaire was used for the in-depth interviews.
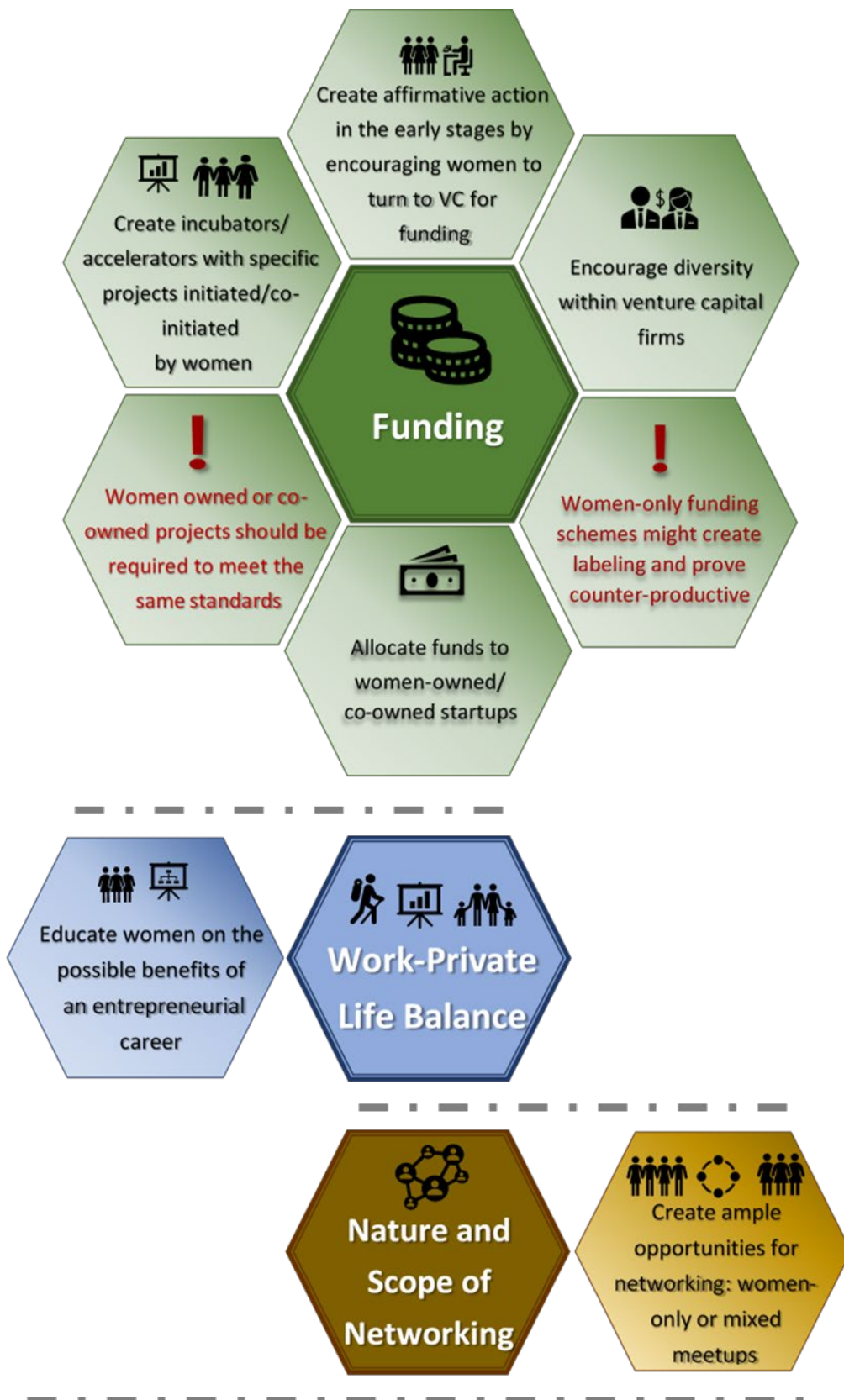
Findings:

The following figures present the main barriers for women entrepreneurs, possible solutions for increasing the number of women in the entrepreneur ecosystem that were found in this research and principles for a program to encourage women's technological and scientific entrepreneurship at the Technion and beyond:

OBSTACLES TO WOMEN'S ENTREPRENEURSHIP

Work-Private Life Balance

Challenges to becoming an entrepreneur at age 25 to 40 and balancing long work hours and long absences from home without family support

Men who take on household chores to enable their wives' personal advancement (including entrepreneurship) are not supported by society

Women obey the dictates of society and are not willing to pay a social price

Personality Difference

Lack of self-confidence (mainly the ability to confidently talk about a subject without fully understanding it), self-marketing, assertiveness and competitiveness

Traits that women do have, such as the ability to work in teams or risk aversion are considered not suitable for entrepreneurship

Motivation Differences

Men want to make money. Women want to solve problems.

Investors in Israel prefer to invest in deep technology, while women tend to focus their technological and scientific ventures on different fields

Investors don't tend to invest in technological solutions for female problems

Lack of Women in the Entrepreneurial Ecosystem

Lack of women in science and technology

Lack of women in top management positions (e.g., of companies, boards of directors and venture capital funds)

Feelings of loneliness and discomfort being the only woman in the room

Funding

It is harder for women to raise funds due to bias and prejudice against them

Investors perceive women-founded ventures as more risky

Women are challenged to procure initial funding from family and friends

Nature and Scope of Networking

Women have few opportunities to develop networks

Women don't maintain contacts that can be leveraged for professional purposes (Low intensity contacts)

Lack of Role-models	Lack of female role-models and mentors
Lack of Practical Knowledge and Tools	Lack of business knowledge and soft skills
Military Service	Lack of women in technological development roles in the IDF technological units (mostly intelligence units)

SOLUTIONS FOR INCREASING THE NUMBER OF WOMEN IN THE ENTREPRENEUR ECOSYSTEM

Create affirmative action in the early stages by encouraging women to turn to VC for funding

Create incubators/ accelerators with specific projects initiated/co-initiated by women

Encourage diversity within venture capital firms

Funding

! Women owned or co-owned projects should be required to meet the same standards

! Women-only funding schemes might create labeling and prove counter-productive

Allocate funds to women-owned/ co-owned startups

Educate women on the possible benefits of an entrepreneurial career

Work-Private Life Balance

Nature and Scope of Networking

Create ample opportunities for networking: women-only or mixed meetups

Exposure to success stories of other women

Lack of Role Models and Mentors

Women to women mentoring and guidance

Provide tools and training in business (accounting, management, marketing, finance…)

Lack of Practical Tools

Provide tools and training in soft skills (presentation, negotiation, public speech, interpersonal communication…)

Education from a young age, in school, in the army and in bachelor's degree programs

Lack of Women in the Technology Ecosystem

State-level top-down affirmative action

Encouraging women entrepreneurship at the Technion and beyond

Education

Funding

Practical Training

NEW TECHNION ENTREPRENEURIAL PROGRAM

The best time to sow seeds for entrepreneurial thought is relatively early, when women are not yet engaged in raising young children. At the Technion, these are undergraduate and partially graduate students

When it comes to hands-on training there is an advantage to mixed teams. Concerning training, especially acquiring soft skills, there are benefits to women-only groups, which will enable them to develop skills in their own "sandbox"

Initiate an entrepreneurial program directed towards the technological areas with a large presence of women, i.e. verious areas of life sciences and medicine, but not exclusively, since a multidisciplinary aproach is both desirable and important

Expose students from various faculties to basic business concepts, models, finance, accounting and other aspects of business management at different stages of growth, along with introducing venture capital concepts.

Soft skills workshops should focus on skills such as self-presentation in front of audiences or investors, tools for interpersonal communication and networking, and more.

Expose both female and male students to female entrepreneurial role models to introduce their entrepreneurial path - the process, the fears, etc. Failures and insights are also important aspects of role-modeling.

Hands-on activities such as workshops, hackathons, competitions, projects or any other form should have a mentoring scheme.

Grants or incubation/acceleration options should be offered on a competitive base, with projects or ventures led or co - led by women offering improved conditions

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1. Introduction

Entrepreneurship and Woman's Entrepreneurship

Entrepreneurship is important to economic development. Benefits to society will be greater in economies where entrepreneurs can operate flexibly, develop their ideas and reap the rewards. In general, the entrepreneur is innovative. Entrepreneurs operate under uncertainty, recognize opportunities and manage their business and compete with others for a share of the market. Entrepreneurs, creators of new firms, are a rare species. Even in innovation-driven economies, only 1–2% of the work force starts a business in any given year. Yet entrepreneurs, particularly innovative entrepreneurs, are vital to the competitiveness of the economy and may establish new jobs (Kritikos, 2014).

Entrepreneurship is defined as an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes and raw materials through organizing efforts that had not existed previously (Mbhele, 2011). It is a complex phenomenon involving a set of activities with technical, human, managerial and entrepreneurial characteristics, the performance of which requires a diverse set of skills (Filion L.J, 2011).

Women's entrepreneurship needs to be studied separately for two main reasons. Firstly, women's entrepreneurship has been recognized in the last decade as an important and untapped source of economic growth. Women entrepreneurs create new jobs for themselves and others and, by being different, also provide society with alternative solutions to management, organization and business problems as well as to the exploitation of entrepreneurial opportunities. However, they still represent a minority of all entrepreneurs. Thus, there exists a market failure discriminating against women's potential to become entrepreneurs and successful ones. This market failure needs to be addressed by policy makers, in order that the economic potential of this group can be fully realized and utilized. Secondly, the topic of women in entrepreneurship has been largely neglected both in society in general and in the social sciences. Not only have women lower participation rates in entrepreneurship than men, but they also generally choose to establish and manage firms in different industries than men tend to do. The industries chosen by women (primarily retail, education and other service industries) are often perceived as being less important to economic development and growth than high technology and manufacturing. Furthermore, mainstream research, policies and programs tend to be "men-streamed" and too often do not take into account the specific needs of women entrepreneurs and would-be women entrepreneurs. Therefore, equal opportunity for men and women, from the perspective of entrepreneurship is still not a reality (OECD, 2004).

In 2015, women outnumbered men in the European Union by approximately 12 million people (260.2 million women to 248.2 million men). While there has been a sharp increase in women's labor market participation over the last 50 years, women are still less likely to be employed than men. At the European Union level in 2015, 78.3% of men were active in the labor market, whereas only 66.8% of women were. Therefore, it should not be surprising that women are also less likely to be involved in entrepreneurship. In 2015, women in the European Union were half as likely as men

to be self-employed (9.9% vs. 17.8%). Similarly, women are also less likely than men to start businesses. During the period 2010-14, 2% of women in the European Union indicated that they own and operate a "new" business compared with nearly 4% of men. Moreover, in comparison with their male counterparts, evidence suggests that female business-owners tend to have lower goals for growth, and this holds across sectors and over time (OECD/European Union, 2017)

BCG's (Boston Consulting Group) study, conducted in 2018, showed that entrepreneurial women create better investment opportunities for venture capitalists and return more than twice every dollar of investment compared to their male counterparts. BCG accompanied the startup accelerator from Massachusetts, which, since its inception in 2010, established more than 1,500 startups around the world. 42% of the companies selected to the accelerator included at least one woman on its founder's team. BCG examined 350 companies which raised capital over five years, of which 92 had a woman on the founding team. The findings showed that the average funds raised by a startup with a woman as a member of the founding team were $935,000, less than half the amount raised by startups with all-male founders - $2.1 million. Despite this gap, the companies founded by women performed better over the long term, with revenue in the first five years being 10% higher than men's - $730,000 versus $662,000, respectively. For every dollar of funding, women's startups make 78 cents, while men's startups make only 31 cents (Abouzahr K., 2018).

In Israel, women's representation in traditional industry is lower compared to their relative share in the general population. Only 29% of employees are women, compared to 47% of all employees in Israel in this sector. The percentage of female managers is 22%, and the percentage of females on the boards of directors is as low as 16%. In 2015, only 5.26% of the businesses in Israel were female-owned. The percentage of self-employed females was 3.8%, substantially lower than in OECD (10.3%).

Israel is known as one of the most innovative nations in the world. It is often referred to as the "Start-Up Nation" and is characterized by a high level of entrepreneurship and innovation in technology and high-tech. Despite the understanding that women are an important resource for the high-tech industry and technological initiatives, their representation in these areas is insufficient at best. Only 5.10% of the startups established in Israel between the years 2014-2017 were led by females (458 led by women, compared to 3890 led by men).

The gaps in the high-tech industry are reflected in several areas: under-representation of women in technological frameworks at different stages of their career (the "leaky pipe" phenomenon), wage gaps, and gaps in support and capital raising.

The "leaky pipe" phenomenon explains the complexity of promoting female entrepreneurship in high-tech. With progress in the entrepreneurial management chain of command, the representation of women decreases. While about 47% of high school female students took the matriculation (bagrut) exam in mathematics at the highest

level (5 units), only about 8% of startups are founded by women, and about 4% serve as a CTO's (Ministry of Economy and Industry, 2019)[1].

Research goals:

This research identifies obstacles that prevent women from becoming involved in entrepreneurship in research and technology and suggests ways to increase women's participation in entrepreneurial activities, not only at the Technion, but beyond. The two research questions posed are:

How can we identify the obstacles to more women becoming involved in entrepreneurial activities and what is necessary to reach this end?

What steps are necessary to carry out a study and a pilot program that could be tested and alter the dynamics?

Methodology

- A review of the literature on the Israeli scientific and technological entrepreneurial ecosystem and women's participation in it. The review includes comparison between the involvement of Israeli women in technological entrepreneurial activities and involvement of women in technological entrepreneurial activities in other countries.
- A review of the literature on obstacles that prevent more women from becoming involved in entrepreneurial activities, and case studies of programs designed to change the dynamics both in Israel and in other countries.
- In-depth interviews with 44 expert stakeholders from across the Israeli technological ecosystem:
  - Entrepreneurs
  - Academia researchers
  - Academia administration
  - Student's representatives
  - Industry
  - Government agencies

  A semi-structured questionnaire was used for the in-depth interviews.

2. Qualitative Analysis

As mentioned, the research team conducted in-depth interviews with 44 women and men from across the Israeli entrepreneurial ecosystem. Full details about the

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[1] Ministry of Economy and Industry. (January 2019). Promoting women in industry, entrepreneurship and business.

interviewees are provided in Appendix A. Key findings on women's-entrepreneurship barriers and ways to overcome these barriers are presented below, followed by recommendations for a women's-entrepreneurship encouragement program at the Technion, formulated by the research team.

i.   Barriers for Women's Entrepreneurship

<u>Work - Private Life Balance</u>

Findings	Quotes
Most entrepreneurs establish their first startup at a young age.	Entrepreneurs work 24/7 and often fly abroad. The age at which entrepreneurs establish their companies is usually between 25-30 and 40 years, when women become mothers. It is difficult to raise a baby or a child when you're often abroad. (Investor)
Many women find it hard to balance long working hours and long absences from home with raising a family	In Israel, the average age for entrepreneurship is 25-28 to 35-38. These are also the exact ages at which people want to start a family. This obstacle is the most significant because it's not about 8:00 to 17:00, and it's harder for women than for men. The entrepreneurial world is one in which there is work at night and travel abroad, which for most people does not fit in conceptually with being a mother, as opposed to a father. (Startup)
It is nearly impossible for a woman to become an entrepreneur at ages 25 to 40 without family support (mainly support from her spouse)	Entrepreneurship has no defined working hours, which sometimes means leaving everything behind. A woman entrepreneur or any successful woman needs a supportive partner at home. (Startup)
	The age issue is also critical. Women aged 30-40 have more commitments than men? In large companies like Google, Intel, etc., they can maneuver more easily between home and work than in entrepreneurship. (Investor)
	Typically, in younger peoples' startups there are more women than in startups that are led by more experienced 35-40-year-old people. At this age, women are more focused on their family and don't take career risks. It is uncommon to see successful entrepreneurs who are women with children, while building a unicorn start-up. (Startup)
	Most women prefer to work in large companies because of family management considerations. In Israel, the responsibility

	for raising the children is still on the woman's shoulders. Women do not want to take a risk while raising their children, and after (the age of) 35 it is harder to become a novice entrepreneur. If there is no support by the partner, it is very difficult. (Hi Tech Company)
	The system is not flexible, not built for mothers. Women are required to sacrifice more than men. (Startup)
	For women, the age of entrepreneurship often clashes with the age of motherhood and young children... A Startup is like a very demanding young child. It requires 24-hour care because there are always urgent things that need immediate attention. Nowadays women start to have children relatively late and it certainly gives time to begin entrepreneurship before the beginning of motherhood. There are fewer entrepreneurs who first start at 40 years old, perhaps because people do not want to lower their standard of living. (Startup)
	During the period of raising children, many women don't work at full time jobs. During these same years that men promote their career. Many women establish their startups only later in life because it's difficult to do together with raising a family. Society requires women to be both talented and responsible for the home. (Investor)
	It is also a matter of personal character. Is there more or less emotional guilt when work requires a large investment at the expense of private life? Women need more support than men on that front. (Startup)
	What prevents women from succeeding is the load in general. Women pay a heavier price than men when it comes to personal development… a man interested in entrepreneurship will go ahead and the family will follow him. A woman will stop and think and be alarmed by the added load. (Academia)
	It is even worse for female research students who usually have young children and need to finish their thesis while their partners are employed full-time. There is no time for entrepreneurship… (Academia)

Society in general does not value and reward men who take on household chores to enable their wives' personal advancement (including entrepreneurship)	If a man wants to take parental leave, employers do not look at it favorably. if a man takes parental leave or leaves early to get a child from kindergarten, it is perceived as disdain for work. (Investor) If it were more acceptable for a man to stay with the children after birth, women would dare to enter the world of entrepreneurship with less fear. Currently, the expectation is that a woman will provide stability and care for the children. (Student)
Women obey the dictates of society and are not willing to pay a social price	The problem is women, not the ecosystem. The statement by women that they want to go on maternity leave or collect the child from kindergarten early puts them at a disadvantage. There is a problem with the approach that the children are the women's' responsibility, and husbands are "assistants". The firm depends on you and you cannot disappear for a half-year in the early stages. When you are willing to pay the price then no investor will ever say "no" to you. (Startup) There were people who said that there would be a problem of balancing a career and raising a family… I chose to ignore the negative voices. (Startup)

Personality Differences between Women and Men

Findings	Quotes
There are some traits that are considered essential for entrepreneurship which many women lack, such as self-confidence (mainly the ability to confidently talk about a subject without fully understanding it), self-marketing, assertiveness and competitiveness.	**Lack of self confidence** Women… are perceived as less secure. Men talk more easily about subjects they do not understand. Investors are looking for people with self-confidence and women are perceived as not sure enough of themselves. (Investors) Women are afraid they will not be forgiven if they are wrong or unable to answer some of the questions. Men are more willing to improvise and take the issue more easily. (Startup)
Other traits that women do have, such as the ability to work in teams or risk aversion are considered not suitable for entrepreneurship.	Women perceive themselves as unworthy of funding and prefer not to apply for funding and fail. (Startup) We are not very good at marketing ourselves and we do not have the same sense of confidence as men. An average man, if he understands 20% of the material, feels safe to present the subject and is not afraid of making bombastic statements. Women, if they do not understand the material 100%, will find it difficult to present the subject with confidence and it is hard for them to make a big statement… Men tend to talk about what they have accomplished and boast about achievement, and women tend to talk about things they have not done yet. (Startup) In the field of life sciences, there are many more women than in other technological fields. There are many women in senior positions. What stands out is that many of the women in senior positions hold a doctorate or a professorship, whereas men do not. In her opinion, women feel that they need to justify being in the senior ranks by having advanced degrees and men do not feel that way (Startup)

	Imposter syndrome
	For women, the "impostor syndrome" is very common and have difficulty in a very competitive environment. Even women who excel, once they need to enter the highly competitive environment, simply give up. (Women's organization)
	…This does not mean that the problem is with women, but it grows from the bias that exists when judging women. For example, they do not attribute their success to talent but to luck. Women internalize this and therefore require of themselves to prove themselves again and again and again (prove it again effect). That is why successful women are very successful, while some men in senior positions are mediocre… (Academia)
	Difficulties in self-promotion
	Men know how to brand themselves. They will talk about what they have accomplished, and women will talk about where they did not succeed. (Startup)
	Women have difficulty saying, "I'm worth it, invest in me". (Investor)
	Lack of assertiveness
	Because women are of a less cold and less aggressive nature they are sometimes perceived as less professional, as the result of a stereotypical perception of what is perceived as better professional qualities. Sometimes the ability of women to work in a team and to be open to other opinions makes them much more professional than the "lonely wolves"… there is a difference between the state of mind of women and men. (IDF Technological Unit)
	Risk-Aversion
	The barriers can be related to women's characteristics which are less entrepreneurial in character and less risk-taking. (Investor)

	Women don't like to take risks. (Startup)
	There is a matter of personality and risk-aversion. Women are afraid to jump into the water and promote ideas. An entrepreneur often hears that the idea is not good enough, and women do not want to deal with that. (Investor)
	Women do not perceive themselves as managers, investors, financial managers or responsible for social economic mobility. Economic mobility stems from taking risks and most of the women on the list of the worlds' 500 richest people have inherited or married and almost no women have done it themselves. Economic entrepreneurship as a way to reach wealth is very contrary to the tendencies of most women. (Startup)
	Another barrier is women's fear of taking risks. It is more difficult for them to cope with the situation in which there will be no permanent income for a relatively long period of time. (Startup)
	Men are taught to strive to be the best, the most successful. This causes women to think they do not need to, or it is less important that they initiate. Even successful women initiate less, due to risk-aversion (Investor)
	Entrepreneurship has elements of daring, chutzpah, risk, and assertiveness that society doesn't expect women to have and are perceived as negative traits for women. (Academia)

Differences in Motivation toward Entrepreneurship between Women and Men

Finding	Quotes
Men want to make money. Women want to solve problems.	Women feel more responsible for others in general and for women, and therefore will try to promote social or semi-technological initiatives such as promoting technological education for girls and so on. Men, on the other hand, are more motivated by economic considerations, so they can sit for a few months and simply look for an idea that will enable them to make "a pile of cash". (IDF Technological Unit) There are many women entrepreneurs who had a problem they wanted to solve or wanted to make a change and did not come from a technological background. (Startup) Men's entrepreneurship starts from interest in technology. Women want to solve problems. Entrepreneurship that focuses on technological education will not interest women. We need to develop entrepreneurship programs for which technology is the means not the goal. (Startup) There is a big difference between the state of mind of male and female students. Male students dream of entrepreneurship even before they enter the university and study computer science as a tool to achieve the goal, while women aspire to study a profession, and perhaps after finishing their studies they begin thinking about the world of entrepreneurship. (Student)
Investors prefer to invest in deep technology in Israel, while women tend to focus their technological and scientific ventures on different fields.	Women focus on areas where it is harder to invest in Israel… the fields typical to them are not deep technologies. Most Israeli investors invest only in deep technology, so many ventures are rejected before the entrepreneur is even seen. The areas in which women focus are those such as applications, marketplace, retail and e-commerce. (Investor). In forums that invest only in women a lot of the investment is in businesses that are close to women, like e-commerce, and less in deep technology. Women are seen as actors in 'female niches' rather than deep technology. (Startup)

	There are also fewer women with technological backgrounds and technological degrees and women feel they are less at the forefront of technology. They deal less with deep technology (e.g., storage, enterprise solutions, and semiconductors) and more with topics like e-commerce. (Investor)
Investors don't tend to invest in technological solutions for feminine problems.	Women often initiate solutions for women. This results from the entrepreneurial world having been dominated by men for so long. There is a real shortage in the market, as in the gap between general medicine and women's medicine. This situation can cause a problem, when investors are primarily men, who do not understand what such solutions for women all are about, although this is apparently an opportunity.(Investor) Many skilled and experienced women recognize a daily need during their maternity leave in fields such as raising children, fashion, clothing, etc., and so they channel their entrepreneurship into these areas. If that fails, they move into their own area of expertise or leave entrepreneurship altogether. (Investor)

Shortage of Women in the Entrepreneurial Ecosystem

Finding	Quotes
Lack of women in science and technology	When women choose a profession for life, a large percentage turn to professions that are not science- or technology-related. So, in the future, the shift from such professions (social work, health care, teaching, manpower, nursing, etc.) to technological entrepreneurship is substantial, and therefore, not easy or obvious. (Startup) One obstacle is the small number of girls who study computer science. Studying computer science was considered not feminine…(Startup)

	(The problem is) Channeling girls to social sciences and humanities in high school… (Women's organization)
Lack of women in top management (e.g., of companies, boards of directors and venture capital funds)	The problem is that there aren't enough women in top management of companies, boards of directors and venture capital funds. (Startup)
	Women [in industry leadership] are not perceived as having substantial experience or a deep technological background. This stems from the fact that there are not many women who are professionals in the field and choose an entrepreneurial path in that field. In positions like CEO or CTO, they are constantly required to protect their place and expertise. (Investor)
	Loneliness at the top, not a lot of women entrepreneurs to talk to. In hi-tech departments such as Electrical Engineering, Computer Sciences, Mathematics, Physics and Aerospace Engineering there are fewer women even at the first-degree level. In all other departments, such as Life Sciences (even when they are department of engineering, like Biomedical Engineering), there is a majority of women students at the first-degree level, but mostly men get to professor level. Lack of entrepreneurial women occurs for the same reasons that there is a shortage of female professors. (Academia)
	Among the obvious obstacles can be noted the minority of women within a very male-dominated field, a minority of women investors in venture capital funds. (Startup)
	The entrepreneur feels lonely because there are not many women in the field. As a result, there is limited ability to consult or to receive feedback about your strengths and weaknesses. (Startup)
	It's true that men investors are not accustomed to the female style of communication, and in times of crises, everyone needs to adjust their communication style, but the only way to overcome this is to have many successful women in the ecosystem. (Startup)

Feeling of loneliness and discomfort being the only woman in the room	As an entrepreneur and also as an investor, I am often the only woman in the room. (Startup)

Funding

Finding	Quotes
It is harder for women to raise funds because of bias and prejudice against them	In the world of startups, many CEOs and product managers have not come from a technological background, but have been hired to manage the business side, yet there is a very strong scent of "hypocrisy" and chauvinism since men are not judged for their lack of technological background and women are judged severely. Even when a woman comes with proven abilities, with a rich background in business, she still feels her abilities are being examined under a magnifying glass and the investors are trying to find headend faults, while men are not treated like that. (Startup) Closed circle of a "men's club" and prejudice (an absolute majority of investors and entrepreneurs are men). (Accelerator) Sometimes there is also an unintentional bias. Women need to overcome higher obstacles while meeting with (male) investors, because, in many cases, there is no intuitive connection. (Startup) "A woman's chance at (succeeding in) technological entrepreneurship is less than that of a man with the same skills. That's a big obstacle. It consists of bias against women and the perception that they will put family, pregnancy and fertility before business. (Startup) Investors ask women personal questions rather than professional ones. …a significant difference … meetings with a male partner or a female partner, which is expressed in small details such as the eyes that are directed at a man even when a woman speaks. (Startup)

	There are very few women in venture capital funds companies, and this is a disadvantage for women. (Investor)
	There are many more men in the world of venture capital. Now it is changing but still true. This is problematic because of personal contact. Just as it is easier for an Israeli investor to interview Israelis, because it is easier for him to identify if the entrepreneur is smart and talented, so it is easier for men to interview men. (Startup)
Investors perceive women-founded ventures as riskier.	Women find it harder to raise money. An investor knows that if an entrepreneur asks him for a million dollars for a start-up, he will need 20 million dollars over time and recruit this sum from other investors. But since women generally find it more difficult to raise the rest of the money, it actually increases the risk to the initial investor as well. (Investor)
There are more women now in VC's than in the past.	The field of venture capital has been really blocked for women in the past and now there is affirmative action both because of public criticism and because they found it improves achievement. (Startup)
Women have difficulties obtaining initial funding from family and friends	The whole fund-raising mechanism is based on continuing to do what proved successful in the past. This represents a 'chicken and egg' situation for women. Investors expect the initial stages of each project to be funded by family and friends of the entrepreneur. Women are less inclined to ask friends and family to invest in their venture. (Startup)
Investors show a greater interest in women-founded (or co-founded) ventures	I feel that the fact that I am a woman gives me an edge now and I'm looked upon more seriously. (Startup)
	If, in the past, investors were not interested in investing in women, investors now want to invest in women. (Investor)

Nature and Scope of Networking

Finding	Quotes
Women have fewer opportunities to develop network connections	It is felt that there is a closed "men's club" in the area of entrepreneurship, with a network of connections and a common past, and the fence must be breached. (Startup)
	When there is no ability to establish relationships based on personal acquaintance, it is very difficult to evolve towards expanding business relations. (Startup)
	Where female soldiers are found in the minority, it is more difficult to maintain relationships. In such cases, it is impossible to rely on a network that is built only on female alumni and sometimes it is difficult to become a part of the alumni network (IDF Technological Unit).
	A male entrepreneur can surround himself with male mentors who help and encourage him. Women have fewer such women who surround them. (Investor)
	One of the most significant things is networking. For men it is easier because of their military service. (Startup)
	Men have a better network of connections as a result of service in technological units, where women are still a minority. Women remain less time in the army - serve fewer years in compulsory army service and remain fewer years in professional service, so fewer connections are established. (Investor)
Women don't maintain contacts that can be leveraged for professional purposes (Low intensity contacts)	In Israel, men create business contacts during their military service. Investors often invest in men with whom they served in the same military unit. Women make contacts differently from men. Men can maintain low intensity contacts. Women don't maintain contacts that can be leveraged for professional purposes. They have other relationships… Successful men can salvage relations they burned along the way. But for women there is a negative correlation between their level of success and how much they are liked by other people. (Startup)

	Women do networking in a different way, shorter and more intensively and not wide and superficially as men do. The male form of networking is better for the business world which requires familiarity with many people and not being "best friends". (Investor)

Shortage of Role-Models

Finding	Quotes
Shortage of role-models	Women especially lack role models. They need to hear more stories of other women who have succeeded at least partially. (Startup) Today there is no role model of a woman who succeeded in balancing the different parts of her life. There are women who are presented in the media as entrepreneurs or CEOs, but the emphasis is always on her long work hours. For many this is not a role model. (Academia) …There is also the issue of role models, almost all of which are men. And it's not just in entrepreneurship. People don't know a women orchestra conductor. Women pianists record and appear less, and they are less famous, and not because they are less good. It is critical because people always strive to be like someone. (Investor) If you do not see options, you do not know it's possible. It is important that successful women say, 'I made it' and not 'I was lucky'. Every successful woman should know that she is a role model for others. (Investor) Another barrier is the absence of female role models. Most people will find it difficult to recall the name of an entrepreneurial woman, as opposed to names such as Bill Gates, Mark Zuckerberg or Steve Jobs in the world of male entrepreneurs. (Startup) Among all the lectures she heard at the Technion, she cannot remember even one lecture by a woman-

Finding	Quotes
	entrepreneur. If she had been exposed to the stories of successful women entrepreneurs who succeed to balance a career in entrepreneurship and family life, she might have been thinking in the direction of entering this field. (Student)

Lack of Practical Knowledge and Tools

Finding	Quotes
Lack of business knowledge	Often, they lack financial and business backgrounds, which prevents them from successfully dealing with the entrepreneurial task. (Startup) Women entrepreneurs today lack the knowledge and experience of how to deal with investors, understanding concepts and investment processes. (Startup) Because of the lack of experience in team management, women are afraid to become CEOs (Hi Tech Company) The studies at the Technion were very theoretical and less practical. There was also a lack of exposure to the world of entrepreneurship in meetups, hackathons, etc. (Startup)

Military Service

Finding	Quotes
Lack of women in technological development roles in the IDF Technological Units (mostly intelligence units)	Most of the women are placed in the operations units and a very small minority is placed on the research teams. Most of the entrepreneurs come from the research division, and the minority of women there is the reason why there are many more male entrepreneurs than women who are 8200-unit alumni. (IDF Technological Unit)

	There are fewer women-run enterprises, among others, because there are fewer women in military units such as 8200 and 8100. (Investor)
	The absence of women in technological units in the army is a barrier. In the army you acquire the seeds of entrepreneurship, where they receive confidence in building projects and create connections. (Hi Tech Company)
	In Israel, the entrepreneurial world stems very much from a military-technological track... The problem begins there. There are fewer women in every 8200 unit and in the technological section, and if entrepreneurship comes from there, then the number of women is small. Increasing the percentage of women in these tracks will unequivocally increase the rate of women entrepreneurs. (Startup)
	In Israel, many of the entrepreneurs start from the military. The first question is "where did you serve?". When I served in the 8200 there were more boys in the programming group and more girls in the language-speaking group. There were half boys and half girls in intelligence-technology roles. (Startup)

ii.   Overcoming Barriers to Women's Entrepreneurship

<u>Funding</u>

Findings	Quotes
Allocate funds to women-owned / co-owned startups Create incubators / accelerators with specific plans for projects initiated / co-initiated by women	It is important to introduce a form of affirmative action, such as the initiative of the Innovation Authority, which allocates funds to start-ups, including women entrepreneurs. It is necessary to create accelerators with a specific plan for women's projects. (Startup) The Innovation Authority launched a track for technology companies owned by women and that is important. (Startup) The best way to encourage technology entrepreneurship in women is to allocate funds to invest in women-owned technology initiatives. A woman should know that her initiative is fundable. Seed money for women should be guaranteed on a competitive basis... It is enough that every year there will be 10 entrepreneurs who will receive funding, even in collaboration with companies (co-sponsorship). It's no more expensive than establishing an accelerator. It is better for the money to go to development than to consultants. (Technology firm)
Remarks: *Startups or projects that receive additional funding because they are owned or co-owned by women should be required to meet the same standards as those owned by men only.* *Women-only funding schemes might create labeling and prove counter-productive.*	*Remarks:* *Women are not special and should not be given special incentives. In this respect, the Innovation Authority's new plan is good because it gives greater support to women-initiated companies only if the company meets the criteria of the Innovation Authority. This is better than support in the easier stage of submitting applications. We must remember that affirmative actions can be a double-edged sword. (Startup)* *Both men and women should be involved, not "closed clubs" for women, otherwise they will say that the bar was lowered. Corrective discrimination is not the right path and it is best for a woman to raise money as a*

	person rather than as a woman. But sometimes there is no choice but to do it. (Invertor)
	The Innovation Authority recognized that there are few women who submit proposals to existing channels and have opened a special track for women entrepreneurs, similar to the tracks they have for underrepresented populations. As soon as the designated track for women was opened, there was an increase in the number of applicants, despite that this track is no different from the regular one. This track has the same judging committee and the same acceptance criteria. The only difference is the percentage of the funding: 75% instead of 50% in the first year and 70% in the second year (Innovation Authority).
	Affirmative action or legislation only lowers women's value. No one should hire or invest in a woman who is not as outstanding as a man just because she is a woman. The Innovation Authority plan also takes affirmative action, but it is less disruptive because it is in business. It is merely a temporary support designed to balance. (Academia)
	All women's accelerators like "Google Campus for Moms" might not advance women. It produces a kind of labeling. It is important that the demand be for a presence of 30-50% women. (Investor)
	The start-up should have a woman among the founders, with a significant share in the equity. (Investor)
Create affirmative action in the early stages of the funnel by encouraging more women to turn to venture capitalists for funding	If you take affirmative action it should be very early in the funnel. As an investor, I encourage many women to contact me, but from the moment they start the process, they do not receive special attention. And thus 20% of women entrepreneurs come to me, compared to 10% of the general population. And indeed, we have about 3-4 companies out of 13 that have a woman leading it. (Investor)
Encourage diversity within venture capital firms	If within the VC there are also women, the discourse will be more inclusive and more suitable for the

| | women, because they will become familiar with the background and identify with those who they are facing. (Startup)

Here, there can be regulatory intervention by the state. There is a need for female partners in VC's because women have a different style and usually don't tend to do overselling. (Startup)

Venture capital funds where there are more women produce a fairer environment. For example, the recent FinTech venture capital fund "Naomi" includes many female managers. (Investor)

Women should be encouraged to be part of the investment system; to take risks as investors. The more women there are on the investor side, the more confident they will be to see themselves as worthy of investment. (technological firm) |

Lack of Role-Models

Findings	Quotes
Exposure to success stories

Women to women mentoring, guidance and role modeling | They need to hear more stories of other women who have succeeded at least partially… An academic institution should have female mentors and not just male mentors, for role modelling and for better accessibility. (Startup)

We need to invest in nurturing role models and encourage girls in the sector to overcome entrepreneurial concerns. (IDF Technological Unit)

Women who "did it" and can be mentors. To bring entrepreneurial technological women to talk about their entrepreneurial path: how they got there, the process, the fears, etc. They can also talk about failures and insights gained. (Accelerator manager)

We must show women who have succeeded, but that is not enough. Successful women must mentor other |

Findings	Quotes
	women, encourage them and provide a supportive network. (Startup)
	In order to overcome obstacles, it is possible to create encounters with role models - successful women, not only for women, but also for men. (Startup)

Nature and Scope of Networking

Findings	Quotes
Create ample opportunity for networking *Remarks:* *Networking groups can be multidisciplinary, and they can be women-only or men and women together.*	Organize meetings of female and male entrepreneurs in areas of mutual interest with specific intention to networking. (Startup)
	Create a dialogue between entrepreneurs (a kind of support group, for enrichment, and learning from one another's experience). (Investor)
	It is a good idea to try matching technological entrepreneurs and business entrepreneurs in order to build a suitable team. This way, women with technological skills, but no business background can become CTO's and not CEO's. (High-tech firm)
	Students from different disciplines need to be introduced to one another in order to create smart networks. A group that contains students from engineering, life sciences, computer science, management, psychology, etc. will be much more productive than a homogenous group and connections will be more effective later on. If women are placed in different parts of a room, a start-up will emerge! (Startup)
	Women's dialogue circles should be developed, encounters between mature and successful women and young women. The very fact of meeting expands the circles of connections. All the women in the room

	enter each other's network as do the lecturers. (Women's organization)

Lack of Practical Knowledge and Tools

Findings	Quotes
Provide tools and training in various areas such as business administration (finance, accounting, management, marketing etc.) and soft skills (interpersonal communication, presentation, negotiation and public speech with emphasis on raising funds, etc.)	Academic institutions can offer courses in entrepreneurship, finance, accounting and business administration. (Startup) Introduction to the world of concepts in venture capital. Introducing mentors who can accompany entrepreneurs in the process. Training in entrepreneurship, raising capital, establishing a company, managing a company at various stages of growth. Training women for self-presentation, in front of audiences and before investors. (Startup) Providing tools for professional communication as well as interpersonal communication, networking, gender understanding and coordination of gender expectations, including members of the other gender from other countries. (Startup) Women must be taught how to stand on stage and how to correctly address investors. (Startup) Female students should be given tools - different workshops that will teach them how to present, speak and gain confidence. (Startup) A program like the Women Founders Forum, for example, can be set up for female students, at early stages, . In the space of 4 years, they will learn what they need to know about appropriate fields, how to approach investors, etc. It is possible to provide tools and perhaps there is a need for affirmative action and a program focusing on women. (Women's organization)

Findings	Quotes
	Would help to have an entrepreneurial mentoring program for female graduate students who are already involved in global research. Perhaps one-on-one mentoring so as not to fall into the impostor syndrome trap, or a group of potential young female entrepreneurs to create a network. (Academia)
	Workshops related to technological entrepreneurship and especially soft skills required by enterprises (not just entrepreneurs). (Accelerator)
	We need to create a training process for entrepreneurial women, such as courses about raising money. Raising money is also hard for men, it isn't easy, but women have a harder time with these processes. (Investor)
	Include theoretical entrepreneurial studies in the various curricula, but mainly practical experience that will enhance a sense of security and ability in this subject. (Startup)
	A university can create an entrepreneurial track that does not pass through the army and 8200. Entrepreneurship is not just technology. Technology is only 30% of the story. One needs a business model, one that finds solutions for customers, personal contacts and other soft skills that are very significant. You can create an entrepreneurial path, through an MBA program, as in the rest of the world. (Startup)

Shortage of Women in the Entrepreneurial Ecosystem

Findings	Quotes
Education from a young age, in school, the army and in bachelor's degree programs	It is worthwhile to open entrepreneurial classes in high schools. It is wise to invest in entrepreneurship and entrepreneurship competitions from a very young age. (Startup) Start to encourage from a young age - and one is never too young for this (accelerator). To improve the situation, it is important to begin education and to push girls to learn scientific fields. It should also come from the girls - there is a limit to how much you can push, but we have to put girls into these worlds proactively, especially in the army. There are many courses in the army that have only one or two girls and it is very difficult and very competitive. (Investor) Overcoming obstacles should already start in school. Girls should be encouraged to learn technology professions and get to know the entrepreneurial world, so they understand that there is such an option. (Startup)
State-level top-down affirmative action	If we want to promote women in science and entrepreneurship positions, we will have to undergo a process of affirmative action, until we see that the number of women in places like academia, business and in general rises. We'll have to move things more aggressively. To reach a certain percentage of women in teams, the change must be mandatory. (Startup) Creating special environments for women as accelerators for them. A venture capital fund that only invests in women, computer science courses for women as well as school classes. Because women operate in a non-adapted world today, it is important to create compatible environments, even if this means lowering the bar. (Women's organization)

Findings	Quotes
	From the top level - the Planning and Budgeting Committee at the Council for Higher Education needs to intervene more and devote larger budgets to the issue. (Academia)
	In the past year, the Council for Higher Education has decided on incentives for universities in order to reach a certain percentage of women in high-tech. This is a positive trend and I would like to see more of it, both in recruiting female faculty members and in promoting women faculty members. It's a step in the right direction that can be significant. (Academia)
	We must fight for women to be represented in these places. In Massachusetts, for example, in all government institutions, there must be 50% women, including judges. Some companies stated that they will not attend conferences or meetings without adequate representation of women. (Startup)
	The state does not do enough. Not enough public funds are allocated to encourage more women entrepreneurs. It is similar to the insufficient demand for women on public boards. (Today the requirement is for one woman and this does not happen in practice either.) When the state gives money, it must dictate that a certain number of women must be on a team or such and such a variety of people. This is something the private market will not do. (Investor)

3. Encouraging Women's Entrepreneurship at the Technion and Beyond

1. Changing the gender landscape at higher education institutions in Israel

Before going deeper into the subject of women in entrepreneurship, it is important to remember that the Israeli higher education system is characterized by a low number of female students and gender scissors in Science, Technology and Mathematics (STEM).

There are many programs in Israel that aim to encourage girls to study science, technology and math[2]. Reviewing these programs is beyond the scope of this study. However, the literature and interviews show that the **first step for encouraging scientific and technological entrepreneurship among women must be to increase the number of girls studying STEM in high schools, serving in technological units in the IDF and enrolling in science and technology studies at the universities. The next step should be to lower the barriers that prevent women from advancing in these fields in Israeli academia.**

2. Lowering barriers to women's entrepreneurship through a Technion Entrepreneurship Program

The Technion entrepreneurship ecosystem consists of a multiple of top-down and bottom-up activities, some of which, but not all, are presented in Annex B. There are some activities that deal with gender-related issues, such as the 2017 Technion alumni organization's Lady-Tech summit on women's entrepreneurship[3], but most activities have no gender emphasis.

The new Entrepreneurship and Innovation Center at the Technion can be an excellent starting point for entrepreneurial women. **We recommend a new entrepreneurial program, that, like many other holistic entrepreneurial programs in universities in Israel and elsewhere, will have three pillars: education, practical training and research. In addition, it is also advisable to establish a competitive investment fund with a preference for women-led or mixed partnership initiatives.**

Here are some highlights of this program:

1. Target Audience

Age

Literature and interviews have many references to the age appropriate or desirable for entrepreneurship. It is widely believed that entrepreneurship is a "game for young people". Because one of the most significant obstacles to women's entrepreneurship

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[2] For example, "Science and Industry Leaders" (Movilot la Technion), a Haifa Municipality-Technion-Industry joint program that operates in Haifa middle-schools and high-schools and promotes science and technology among girls. https://www.movilot.co.il/

[3] https://www.technion-alumni.org/content/lady-tech_4_women_entrepreneurship

is the fear of undermining the balance between work and private life, **the best time to sow thoughts of entrepreneurial seeds is relatively early in life, when women are not yet engaged in raising young children. At the Technion these are undergraduate students and some of the graduate students**. Parts of the program will also be suitable for female faculty members with or without tenure, especially those parts that will deal with business education (see below).

Gender

Literature and interviews have raised the question of whether, given the unique barriers to entrepreneurship for women, it would be more effective to teach women in a women-only environment, or whether a program targeted solely for women can be implemented in a mixed environment.

Given the great success of mixed teams in the BizTEC competition (see literature survey), there is no doubt that, at least **when it comes to hands-on training, there is an advantage to mixed teams of women and men**. However, **when it comes to training, especially acquiring soft skills, there can be benefits for women-only groups**, which will enable them to develop skills in their own "sandbox".

A women's entrepreneurship program is incomplete without role-models. From an educational point of view, it is important to expose men as well as women to successful women in entrepreneurship.

2. Thematic program

Since the dispersion of women in the Technion varies among the faculties, it is advisable to direct an entrepreneurial program with a focus on women towards the technological areas where there is a large presence of women, i.e. different areas of life sciences and medicine. This isn't to say that the program will not accept or will not suit young students / faculty from other faculties (e.g. electrical engineering and computer science). On the contrary, a multidisciplinary approach is a desirable and important element. But it makes more sense to nurture women entrepreneurs in the areas where women choose to be.

3. Education

3.1 The business side: establishment and management of interdisciplinary high-tech startups with a focus on life science and medicine

One of the main findings of the interviews was the lack of practical tools. The business aspect is crucial to the success of any startup. Entrepreneurs must have some idea about **business models, finding solutions for customers, finance, accounting and other aspects of business management at different stages of growth, as well as an introduction to the world of venture capital concepts.**

3.2 Soft skills

Another significant finding of the interviews was the importance of soft skills for any entrepreneur. **Soft skills workshops should focus on skills such as self-presentation in front of audiences or investors, tools for interpersonal communication and networking, and more.**

3.3 Role-Modeling

The need for role-modeling was expressed by almost all of the interviewees. **It is critical to expose both women and men to entrepreneurial technological women and to hear about their entrepreneurial path** - how they got there, the process, the fears, etc. Failures and insights are also an important aspect of role-modeling.

4. Hands-on Practical training

Hands-on activities such as workshops, hackathons, competitions, projects or any other type should have a mentoring scheme. Mentors could be advanced degree students, Technion alumni, industry men and women or even "Academic mentors" - entrepreneurs from academia who are willing to advise - for example, in the form of "office hours" once a week or once a month.

Note: It is important to point out that such education programs are currently administrated in different Israeli academic institutions by specialized organizations (for example: Pro-Women[4] programs in the Interdisciplinary Center Herzliya and Ben-Gurion University).

5. Research

In the words of one of the interviewees, "Universities also have a place to develop and create academic knowledge in management faculties and others that will illuminate what we still need to know". In order to advance women's entrepreneurship, it is important to stay on the cutting edge of research on entrepreneurship, and women's entrepreneurship, in particular.

6. Funding

The literature and interviews suggest that while it is difficult for men to raise funds for new ventures, it is even more difficult for women, to the point that an affirmative action is required. **Grants or incubation / acceleration options should be offered on a competitive basis, with projects or ventures led or co-led by women offered improved conditions**, much as it is done in the Israeli Innovation Authority's Incentive Program for Female-Led Startups[5].

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[4] https://www.prowoman.org.il/?fbclid=IwAR1WdjRa-Lo7CWjQgweWeZvnyNODTR7z7nOwEqyyCMXcTPg9IMKwsmm6fBM

[5] https://innovationisrael.org.il/en/news/israel-innovation-authority-launches-incentive-program-female-led-startups

3. Literature review

i. Boundaries and Limitations to Women's Entrepreneurship

Limited access to capital: Women-owned startups receive less investor funding

- Venture capitalists tend to invest in startups run by people of their own 'tribe'. There are not many female investors.
- Women are perceived as more conservative and require a project investment on a more prolonged scale. Venture investors of both sexes perceive a female-led company to be higher risk.
- If a woman is a single mother, with no additional income from a partner, then accessing business financing could be even more challenging.
- Women rely more heavily on internal than on external sources of capital for start-ups and raise smaller amounts of capital for financing their activity.

Lack or limited networks

- Women entrepreneurs tend to have entrepreneurial networks that are smaller and less diverse than male entrepreneurs.
- Women's entrepreneurship networks seem to be composed differently than those of men entrepreneurs, being more likely to include family, friends and educators rather than business service providers or other entrepreneurs.
- Investors are more likely to invest in companies they have been introduced to through personal acquaintance than companies led by individuals not in their social networks.
- Given that social networks are highly segregated by race and gender, women and entrepreneurs of color have fewer opportunities to connect with the venture capital networks to secure investment, which are predominantly white and male.
- Women are less likely to be able to draw on relevant social capital from previous work experiences.
- The lack of access to peer, mentor, and social networks from prestigious universities and tech companies prevents underrepresented groups from having access to referrals and introductions to VC firms and from receiving recommendations.
- Entrepreneurship educational pathways tend to be informal and access to entrepreneurship networks plays a critical role in developing knowledge needed to launch a startup or small company.
- The army engenders "old boys" networks, especially among members of prestigious elite combat units. These networks spill over to civilian and professional life, and are especially instrumental in the areas of recruitment, access to information, funding / contracts and networking (in Israel).
- Especially in informal society, personal contacts and relationships with key individuals who facilitate the start-up are of high importance (in Israel).

Lack of knowledge resources

- Women lack access to ongoing education and training opportunities for the development of entrepreneurship key competence and business skills.
- Women lack business support systems.
- Women appear to have greater difficulty acquiring entrepreneurship skills.

Lack of confidence

- Women experience fear of failure.
- Women are generally less prone to taking risks.
- Fear of failure, or even fear of success, stand in the way of pursuing the path of entrepreneurship.
- Women tend to focus on their mistakes.
- Women tend to underestimate their achievements.
- Women are poor at claiming credit for their successes.
- Women are less likely than men to feel that they have the skills, knowledge and experience to start a business.

Balancing business and family

- The reality for most women is that they often must choose between a career and a family.
- Until recently, men haven't had many rights to paternity leave.
- For many families, the cost of childcare is so high that some mothers can't afford to return to work.
- Marriage and motherhood are social imperatives (in Israel).

Cultural and Societal barriers: Role of women in society

- Many cultures or traditions view the husband as the breadwinner.
- Girls are raised and taught to make career choices that are often perceived as female.
- While sons are raised with the expectation that they will enter the family business, daughters usually lack the opportunity to succeed their fathers.
- Women lack support from family and friends.
- Double Standards - different dress code

Feeling intimidated in a male-dominated field

- The tech sector is the new men's club and women naturally feel less comfortable in this male-dominated environment.
- Women experience a lower level of legitimacy.

Lack of female role models

- There are not many women entrepreneurs and women in managerial positions.
- The ideal of the male entrepreneur as the norm continues to be perpetuated by social media.

Sources: (Halabisky, 2018), (Lerner, Brush, & Hisrich, 1997), (Carver, n.d.), (Raghuvanshi, Agrawal, & Ghosh, 2017), (The Kauffman Foundation, 2016), (Krupsjy, 2018), (Pandos, 2018), (Kapor Center, n.d.), (Bekh, 2014), (Ascher, 2012), (Aldamiz-echevarría, C., 2017)

ii. The Israeli technological entrepreneurial ecosystem in numbers

Education system

In the last decades new gender gaps were revealed in education systems in advanced countries: Boys tend to be less involved in school and drop out of school earlier. However, the distinction between subjects that are considered masculine and those considered feminine is preserved - for example, in post-primary schools, girls are underrepresented in mathematics, physics, science and computers (Avgar, 2017).

Figure 1: High school female students who took the matriculation (bagrut) exam at the highest level (5 units) in 2016 (%)
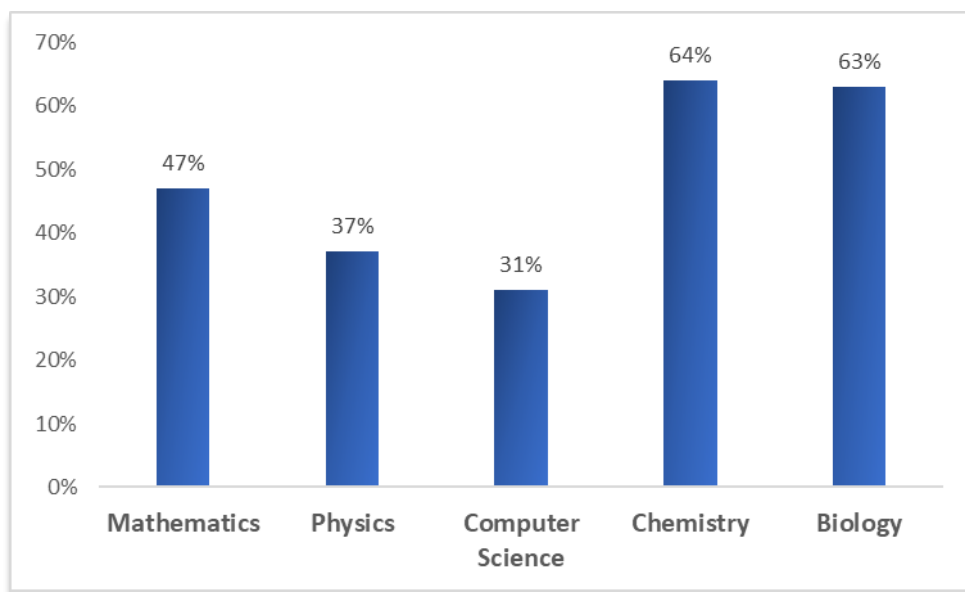
Sourse: based on CBS, 2016

IDF

It is a well-known fact that the veterans of the Israeli technological units, especially military intelligence units, are the backbone of the Israeli high-tech industry. However, women are still a minority in such units, especially in deep-technology military professions. Only 22% of all personnel in the IDF technological array are women and only 27% of all the IDF programmers are women. (Rabat, 2019).
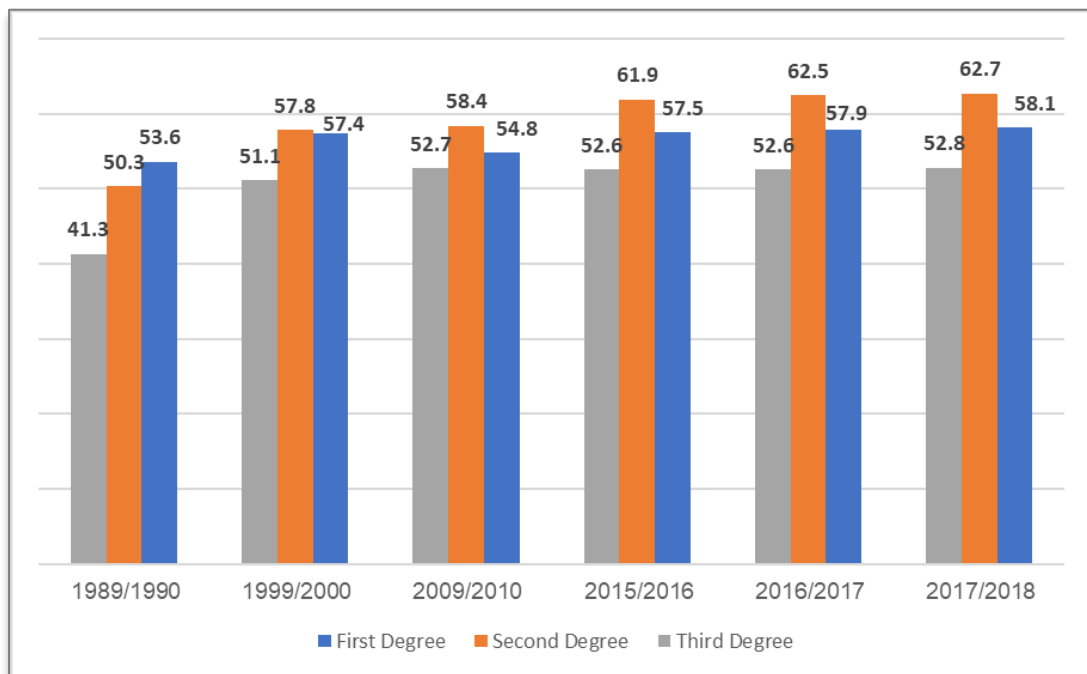
Figure 2: Women in the Military technological profession
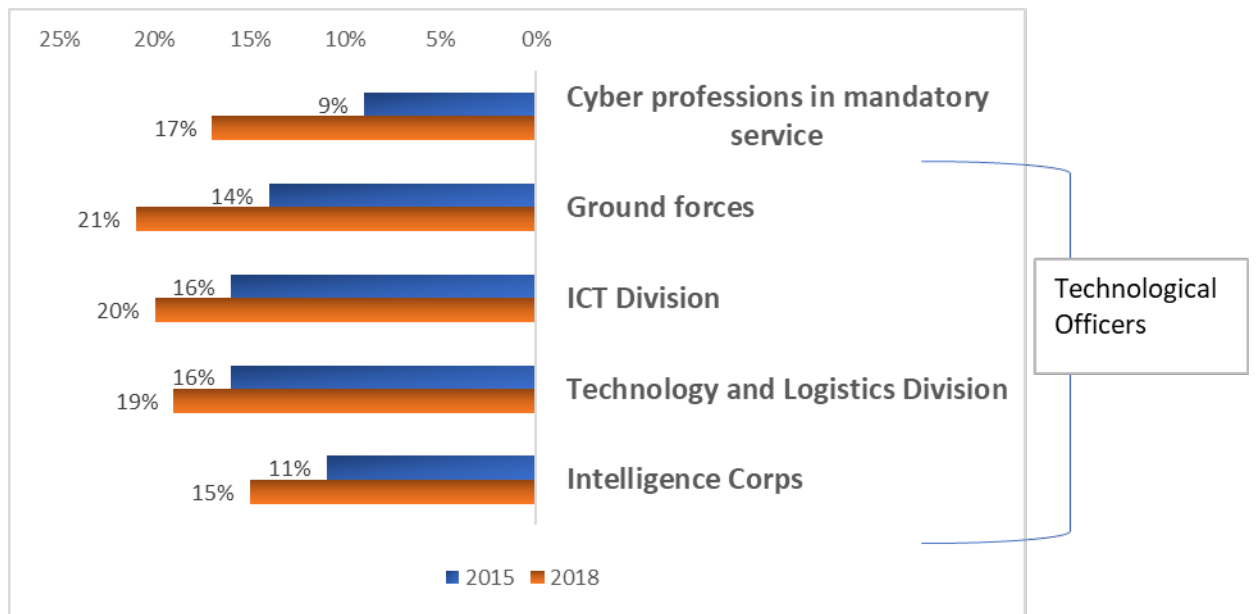

Source: Based on Rabat, 2019

Academia, with emphasis on the Technion

In 2017/2018, 59% of all students in Israel were women. Women accounted for more than 50% of students in all degrees in 2017/2018 - 58% of all first-degree students, 63% of all second-degree students and 53% of all third-degree students.

presents the increase in share of female students in Israel since 1989/1990.

Figure 3: Increase in share of female students in Israel since 1989/1990 (%)
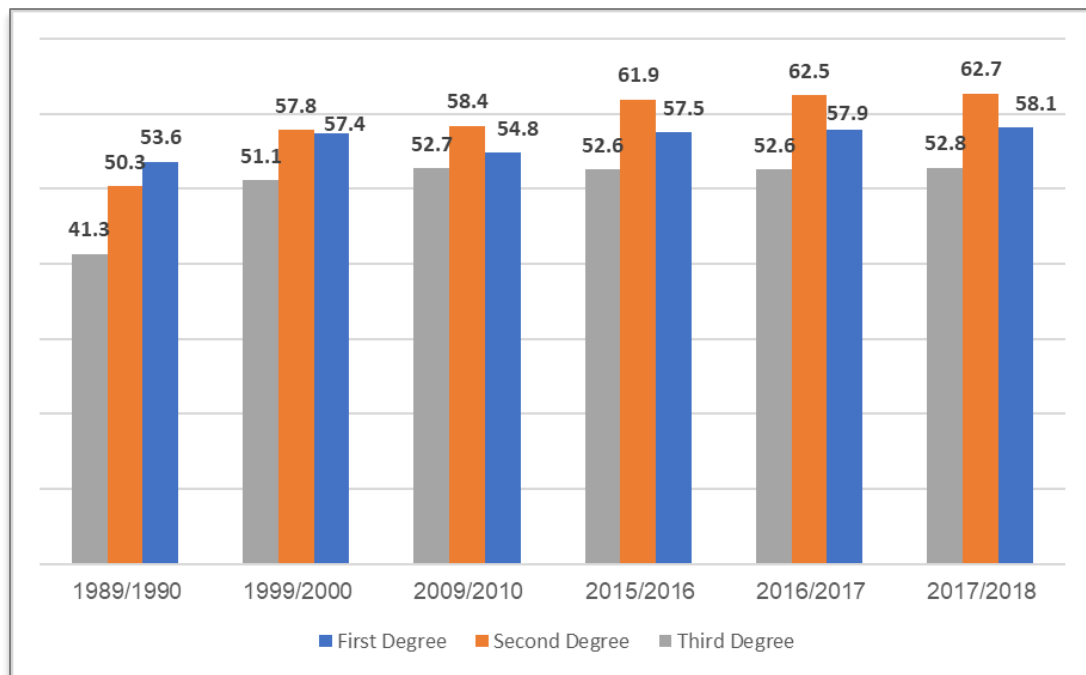
Source: Based on data from the Council for Higher Education, 2018

However, in Science, Technology, Engineering and Mathematics (STEM) there are fewer first-degree female students than male students, and hence there are fewer female students than male students studying for advanced degrees. Only 25% of students in high-tech related academic fields are women, and only 26% of all employees in the high-tech industry are women[6] (Council of Higher Education, 2018).

The Israeli higher education system is characterized by gender scissors: According to the Council for the Advancement of Women in Science and Technology in Israel, while women make up more than 50% of undergraduate and graduate students, their representation declines as they advance on the academic ladder, to about 15% in universities and about 10% in colleges with full professorships. This snapshot is fixed over time (Council for the Advancement of Women in Science and Technology in Israel, 2015). The discrepancies between the proportion of women and men in the senior academic staff are characterized by striking field differences. In mathematics and computer science, for example, women constitute only 10% of the academic staff, and in the physical sciences 11%. In contrast, in education and life science, women constitute 52% and 63% of the academic staff, respectively. However, even in areas where the proportion of women is relatively high, there is a clear trend toward a decline in their rate, with the increase in academic degrees. The overall percentage of faculty members in Israel, which stands at 29% at universities, is particularly low compared to European countries, where the percentage of faculty members averages 40%. In the student body, too, there is considerable differentiation - women make up a prominent majority of students in social sciences and humanities, Life Science and education;

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[6] Council of Higher Education. (2018). Israel's higher education system: 60 years of the Council for Higher Education (MALAG), and 70 years of academic excellence

And their proportion in the fields of physical sciences, computer science and mathematics is extremely low.

Figure 4: Gender scissors diagram in higher education in Israel in 2018
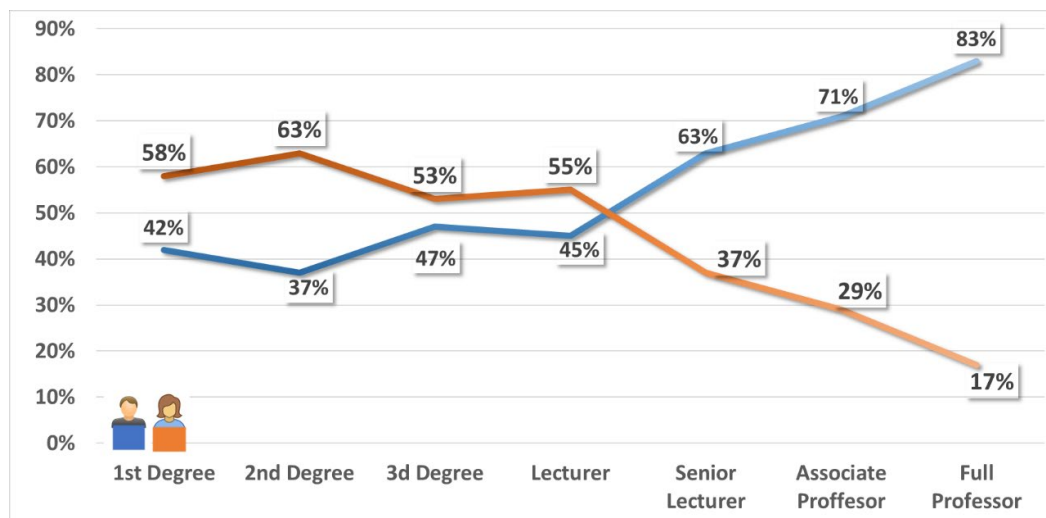
Source: Based on data from the Council for Higher Education, 2018

Table 1: Representation of women in the higher education system by field of study (%)

	First Degree	Second Degree	Third Degree
Total	58.1	62.7	**52.8**
Healthcare occupations	82.2	87	**81.7**
Education	79.6	82.7	**79.5**
Social Sciences	69.1	70.6	**62.4**
Biological Sciences*	68.7	66.6	**60**
Architecture	67.5	57.1	**57**
Humanities	63.3	58.8	**53.2**
Medicine*	60.1	54.6	**-**
Business	59.8	54.2	**53.7**
Law	52.5	56.1	**49.4**
Agriculture	51.7	57.4	**47.4**
Physical Sciences	38.5	35.2	**37.4**
Math, Statistics and Computer Sciences	33	26.7	**24.2**
Engineering	28.5	26.2	**31**

Source: Council for Higher Education (Council of Higher Education, 2018)

* Third degree medical students are included in the biological sciences

Figure 5: Representation of female faculty in Israeli universities by position - 2015/16
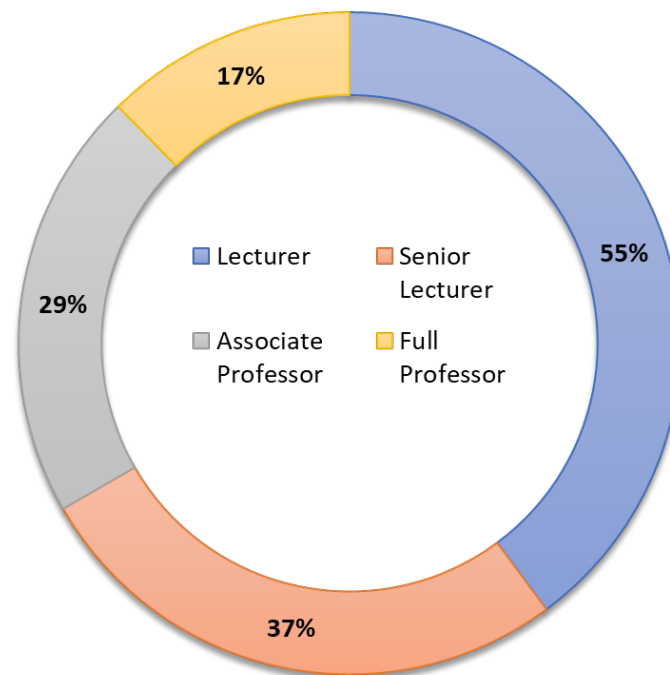
Source: Based on Lerer & Avgar, 2018

Figure 6: Representation of the female senior faculty in Israeli universities, by field of study (%), (2014/15)
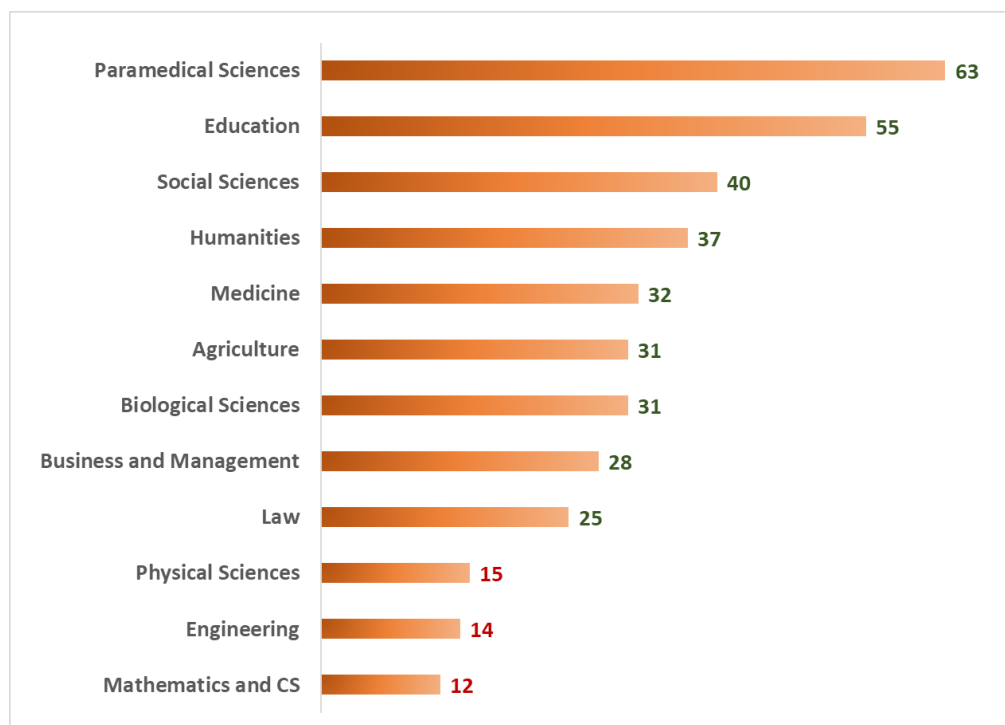
Source: Based on Lerer & Avgar, 2018

Figure 4 indicates that the number of women among senior faculty members decreases with the seniority of faculty rank. Thus, while women constituted over half of lecturers, less than a fifth were full professors. The data indicate that while the women constitute a majority of faculty members in paramedical studies (63%) and education (55%), they are a minority in the scientific and technologically oriented fields such as physical sciences (15%), engineering (14%) and math and computer science (12%).

The situation at the Technion is no different. In 2016/17 36.7% of all students were women. However, in Physics, Mathematics, Information Engineering, Electrical Engineering, Mechanical Engineering and Aerospace Engineering (which are considered the more "hi-tech oriented" departments) the percentage of female students was much lower than the overall percentage of female students in the Technion. Table 2 presents the number of female and male students in 2016/17 by degree and

Figure *10* presents the distribution of female students at the Technion by the field of study during that same period.

Table 2: Male and female students at the Technion by degree, 2016/17

|	Women	Men	% of Women
First degree	3,545	5,807	37.9%
Second Degree	1,007	2,200	31.4%
Third Degree	4,69	637	42.4%
Total	**5,021**	**8,644**	**36.7%**

Source: Tal & Goldrat, 2017

Figure 7: Percentage of female students at the Technion by degree, 2016/17
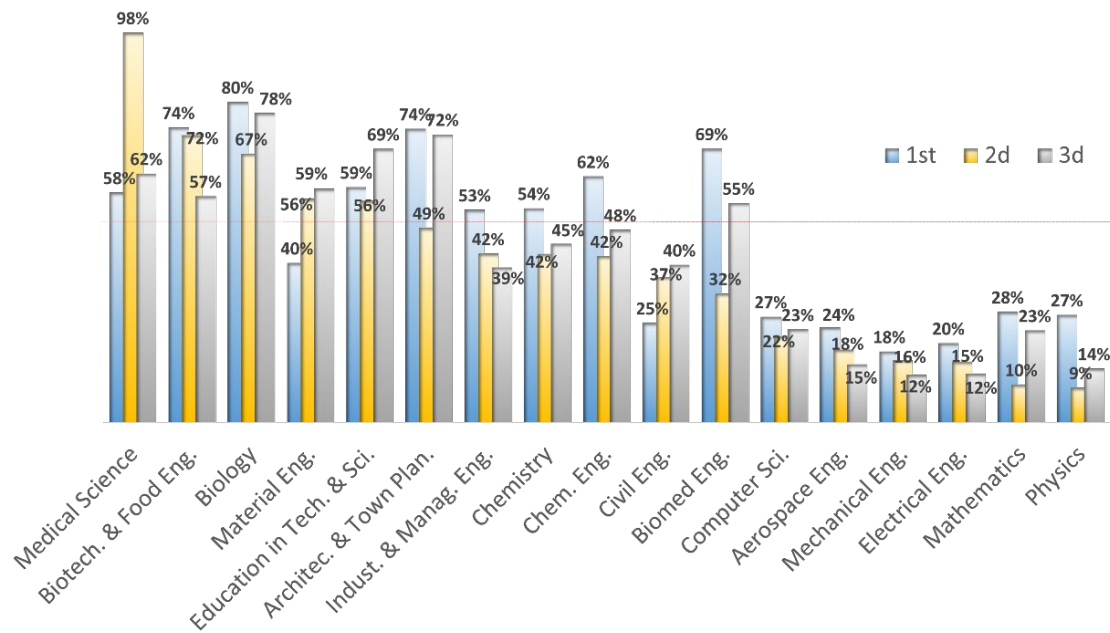
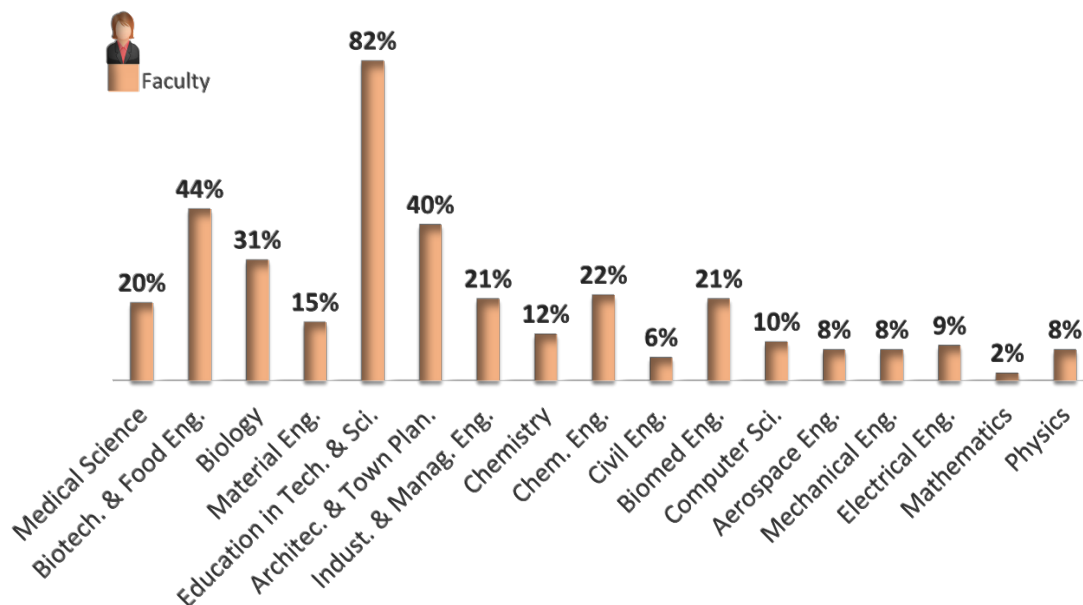
Source: Based on Tal & Goldrat, 2017

In 2017, there were 90 Technion female faculty members on a tenure track. The distribution between female and male faculty members varies significantly between the different faculties. The lack of female faculty members is particularly noticeable in the Mathematics with only one female faculty member and in the faculties of Aerospace Engineering and Materials Engineering with two female faculty members each.

Figure 8: Percentage of female senior faculty at the Technion – 2016/2017
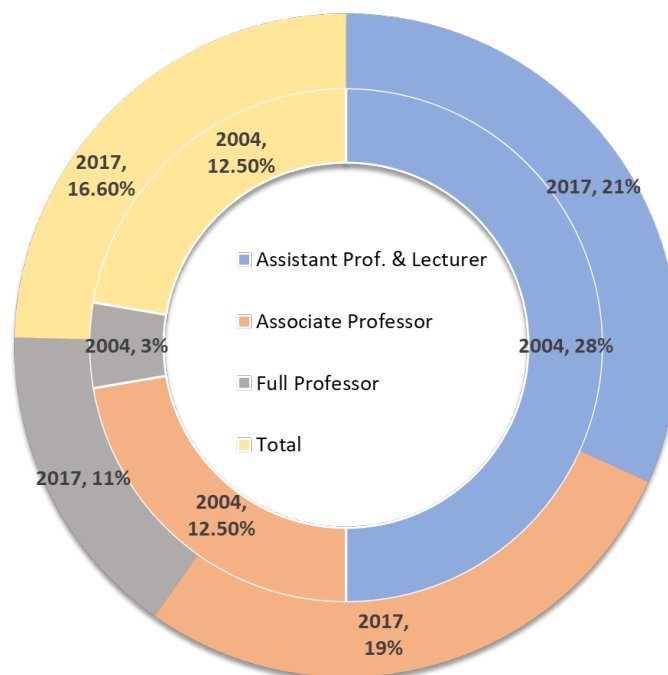
Source: Based on Tal & Goldrat, 2017

Figure 9: Distribution of female faculty at the Technion by department, 2016/17

Source: Based on Tal & Goldrat, 2017

Labor market and entrepreneurship

While there has been a sharp increase in women's labor market participation over the last 50 years, women are still less likely to be active than men. At the European Union-level in 2015, 78.3% of men were active in the labor market, whereas only 66.8% of women were. It should therefore not be surprising that women are also less likely to be involved in entrepreneurship. In 2015, women were half as likely as men in the European Union to be self-employed (9.9% vs. 17.8%) (OECD/European Union, 2017).

Figure *10* presents the percentage of male and female firm founders, and executive and technological managers in the Israeli High-Tech and Venture Capital (IVC) Database. It can be clearly stated that the Israeli high-tech industry is dominated by men. The level of women's involvement in executive positions in the Israeli high-tech ecosystem is tremendously low. According to IVC Research Center, there are 1987 female founders (8%), compared to 22,063 male founders (92%). The lowest percentage of women appeared in the CTO positions.

Figure 10: Women in Hi-Tech Ecosystem in Israel, 2019
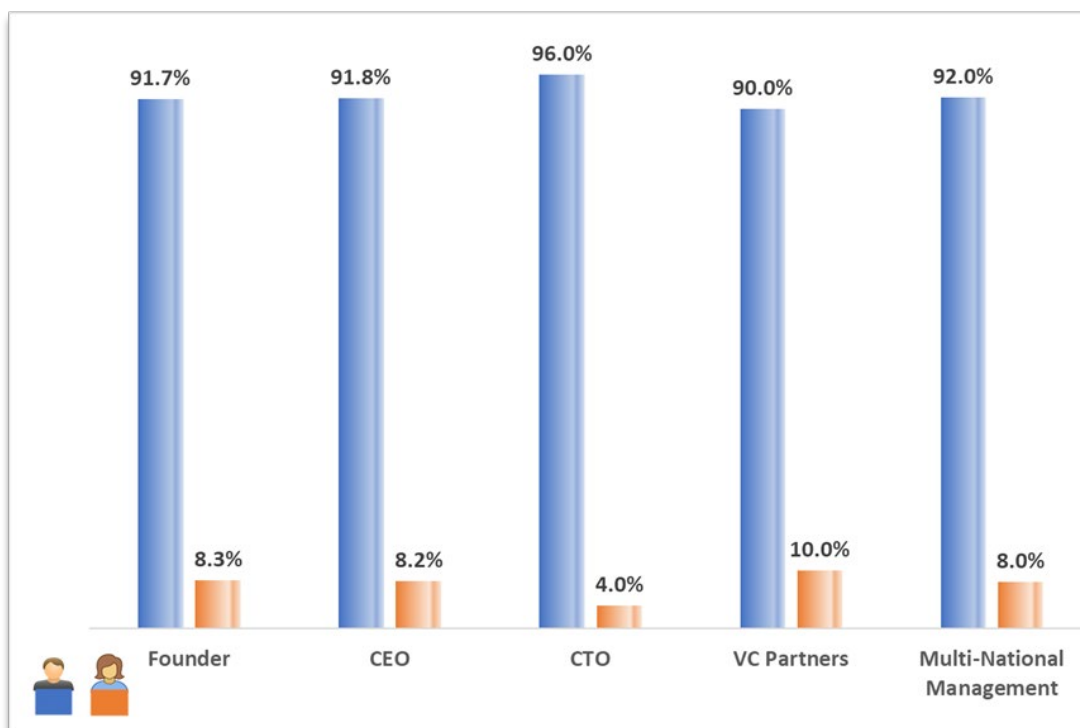
Source: IVC Research Center "Women in the Israeli High-Tech Ecosystem" (2019)

The Dell 2019 Women Entrepreneur Cities (WE Cities) Index puts Tel-Aviv in 32nd place out of 50 in its ability to attract and support high potential women entrepreneurs, a drop of 8 places compared to the 2018 index.

Figure 11: 2019 WE Cities Index Rankings

Source: (Dell Technologies, 2019)

iii. Women's entrepreneurship programs in Israel

GOVERNMENT

Israel Innovation Authority Incentive Program for Female-Led Startups

Under a new program, women-led start-ups (requiring at least 33% ownership and a managerial or technological role in the company) will be eligible for research and development grants of up to 75% of the company's R&D funding in the first year, and 70% of funding in the second year, with a budget cap of up to NIS 2.5 million in the first year and NIS 4.5 million in the second year. In addition to the grants, the Innovation Authority plans to open a dedicated support program for women to enable access to all the support tools available through the organization. The designated incentive program for women-led ventures is a tool aimed at fulfilling the inherent potential for technological innovation in all segments of Israeli society.

The goal of this grant program is to minimize the gender gap in Israel's hi-tech ecosystem, by helping women entrepreneurs meet their main challenges including funding and networking with potential investors. The program, designed for early-stage companies, operates under the Early Stage Incentive Program offered by the Startup Division of the Israel Innovation Authority, offers unique benefits that joins other programs offered by the Authority for support of under-represented populations in the high tech industry, such as the Incentive Program for Ultra-Orthodox and Minorities.

ACADEMY

Artemis (IDC Herzliya)

The Artemis program is intended to advance women's entrepreneurship and leadership among the IDC female students and alumni.

Artemis will meet on a weekly basis with leaders of the industry in the fields of high-tech, marketing, social entrepreneurship, and community development. In lectures and workshops, students attain requisite skills to advance their projects with support and guidance from Club leaders.

Artemis focusses on development of leadership skills, public speaking, and teamwork. In addition, there will be workshops on topics such as strategic thinking, pitching, marketing, and branding, which will be enhanced by forging relationships with industry leaders. The focus of the Club is to integrate women into key roles in the business world and social entrepreneurship.

ProWoman (IDC Herzliya)

The ProWoman Club is composed of students who aspire to become managers, entrepreneurs and influential in the fields of economics, high-tech, government and social activity in the economy and in Israeli society as a whole.

The program consists of weekly meetings with leading women in senior and influential positions from all fields of the Israeli economy. The women share their personal success stories with the students, telling how they combine a career with family

management, and expose the students to entrepreneurship, social-public action and various management positions.

The purpose of the meetings is to expose students to successful women from different fields, to hear their story, to receive organizational and management tools for future use, to undergo personal development and, above all, to be enriched, inspired and motivated to do so.

At the end of the program, all students join the ProWoman National Graduate Organization, which includes graduates of the program from all the years and from all the universities and colleges in which the program exists. The organization organizes events, lectures and workshops during the year for adults only, thus maintaining a network of connections and networking that sets the stage for future cooperation.

The program is open to first- and second-degree students, from all tracks, and takes place only during the second semester.

ProWoman BGU

This ProWoman program is designed for students from all faculties and departments who aspire to reach managerial positions in the Israeli economy and in general.

The program consists of weekly meetings with women who play influential roles, who tell their personal success stories, how they combine career with family management and expose students to entrepreneurship and management positions. The program provides participants with personal development, organizational and managerial tools, and mainly inspiration and motivation for action.

BGU Women's Entrepreneurship Program by WE – Women's Entrepreneurship & Yazamut 360

The goals of these programs are to provide valuable tools, resources and methodologies to be used by participants in their professional careers and empower up-and-coming entrepreneurs within the community.

Participants will gain invaluable experience regarding the necessary steps required to form a successful founding team and their role within it. They will refine their communication skills and learn common characteristics of highly productive and successful teams. In addition, the participants will learn extensively about the entrepreneurship world, the mechanics behind the scenes and adopt methodologies to identify and pursue viable business ideas.

The program consists of ten practical in-depth seminars of approximately three hours each. Every seminar covers a different 'pillar' while providing necessary tools, methodologies and insights relating to it. The program is designed to create synergistic yet independent sessions that work in sync and empower individuals within the community.

Business Accelerator for Entrepreneurial Women

The Cherie Blair Foundation for Women (Western Galilee College (WGC))

Developed in partnership with the Cherie Blair Foundation for Women and the Pratt Foundation, this year-long program for women entrepreneurs in the Galilee includes 250 hours of theoretical and practical training courses in marketing, business plan

creation, finance, sales, advertising / PR, customer management, social media, legal issues, and more. In addition to courses, the 24 selected Jewish and Arab women business owners receive six months of business coaching and participate in empowerment workshops and field visits. The generosity of the Pratt Foundation and the Cherie Blair Foundation for Women has enabled WGC to offer this comprehensive program for a nominal fee.

NON-PROFIT INITIATIVES

Yazamiyot & Microsoft - Accelerator for Women

This program, a productive collaboration between Microsoft Accelerator and Yazamiyot, is an intensive accelerator organized in two phases: theoretical and practical. The program provides various workshops with leading Israeli startup experts, who guide the participants through the most crucial challenges of initiating a startup, along with mentors from Microsoft, who share invaluable information with the participants for their startups.

Yazamiyot & Google Campus for Moms

Campus for Moms is a baby-friendly start-up school for new moms, run by Google in partnership with Yazamiyot. The program includes sessions led by successful entrepreneurs, investors, technology experts and more. The sessions cover success stories, financial and legal aspects, presentation skills as well as tech knowledge, like cloud computing. This program is unique in that it allows participants to care for their babies during the sessions, without missing the opportunity to learn and grow.

WMN Community for Female Tech Founders

Launched in 2015, WMN is a community for female tech founders.

WMN, is a community of women tech founders. Their activity is a nonprofit initiative that is about changing the numbers of female entrepreneurship in the startup scene, by giving women access to a co-working space, top mentors, tailored workshops and stimulating a vibrant community.

This goal in particular is accomplished by identifying and overcoming barriers in the entrepreneurship life cycle encountered by women entrepreneurs, leveraging local Israeli leadership and generating partnerships with local government, private entities, and non-governmental institutions, connecting Israeli women entrepreneurs to seed funding and capital; entrepreneurial training; mentorship; partnerships with private companies, and creating coordination mechanisms to connect women entrepreneurs to these various forms of support.

Woman2Woman

The Woman2Woman Community was founded as part of the 8200 Alumni Association with a vision toward leading change in Israeli society by creating value for young talented women. The community provides women with the skills to develop their careers by hosting inspirational events and a supportive community. The guest speakers include leading women from Israel and abroad who share their insights and practical advice.

As part of the community, W2W operates a prestigious mentorship program for young women facing their first professional "crossroads". The program promotes these young women and leads them to success in fulfilling their goals, from potential to excellence, while developing their personal and professional skills.

At the core of the program is a process of personal mentoring by leading women who were chosen for their leadership and high-level positions within different frameworks of Israeli society: hi-tech, entrepreneurship, finance, law, business and strategy, political science and the Third Sector.

Iskit – Women's Entrepreneurship

"Iskit – Women's Entrepreneurship" is a business-community venture based entirely on volunteerism. It is managed by a team of women, which currently numbers 12 entrepreneurs, and works to enable the advancement, development and empowerment of women with existing businesses or entrepreneurs at the beginning of their careers.

The tools received from the program include conferences, workshops, networking meetings and the annual conference for the advancement of women's entrepreneurship. The program enables a wide and diverse meeting, which promotes the development of new initiatives and cooperation.
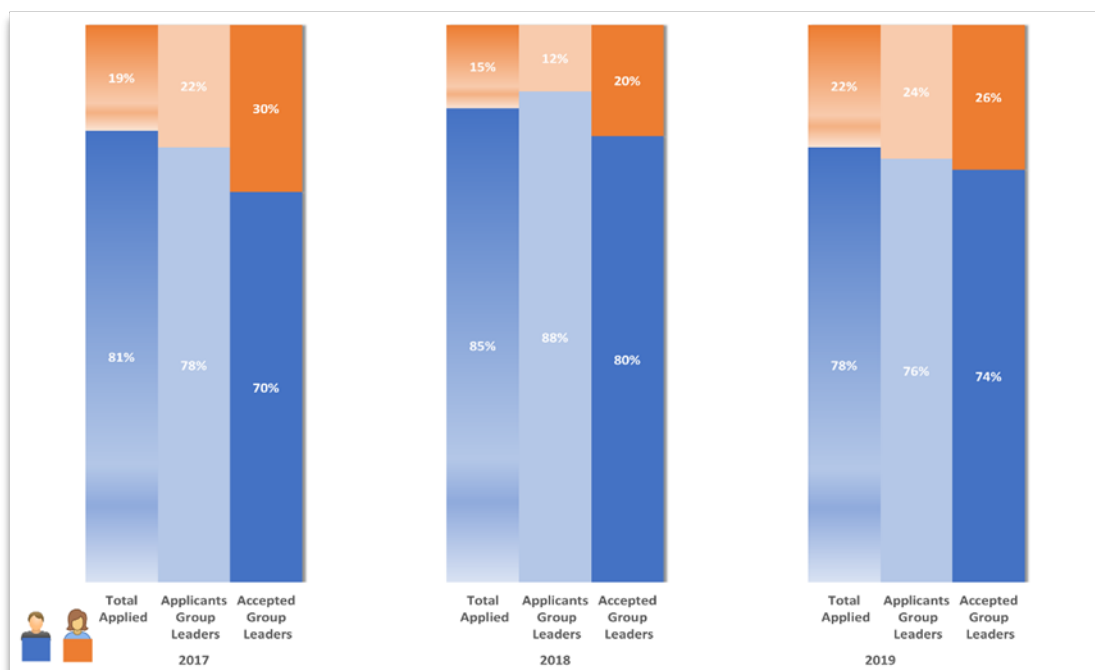
iv.   BizTEC

BizTEC is Israel's top technological entrepreneurship program led by the Bronica Entrepreneurship Center at the Technion. Founded in 2004, it includes students and alumni of more than 20 campuses across Israel. BizTEC creates the next generation of technology entrepreneurs. It caters to hundreds of entrepreneurs annually and is the starting point for many successful startups and entrepreneurs in many different verticals.   Hundreds of young and enthusiastic entrepreneurs have participated in the BizTEC program during its twelve years of activity. Many of them have founded innovative startups based on technological breakthroughs. The BizTEC alumni network keeps on growing, with more than 50 startups and over $200M raised.

During the program, participants undergo an intensive process venture creation, starting from idea formation to the production of an early-stage proof of concept. The program comprises two main phases: eSchool and Summer Program.

During the eSchool phase, approximately 30 teams receive tailor-made workshops from leading experts. These workshops focus on marketing, legal resources, financials, and strategy. The eSchool culminates in pitches to industry experts, based on which they select 10 teams to proceed to the Summer Program. The Summer Program includes individual mentors, more intensive workshops, and a lot of one-on-one coaching by our experts. At the end of the Summer Program, the teams once again pitch to investors, this time in a demo day that is open to the entire Israeli entrepreneurship ecosystem. The winning team is awarded prize money, but all teams are awarded with the tools they need to launch their first technology venture.

Figure 12: Percentage of Female Applicants in BizTEC Program
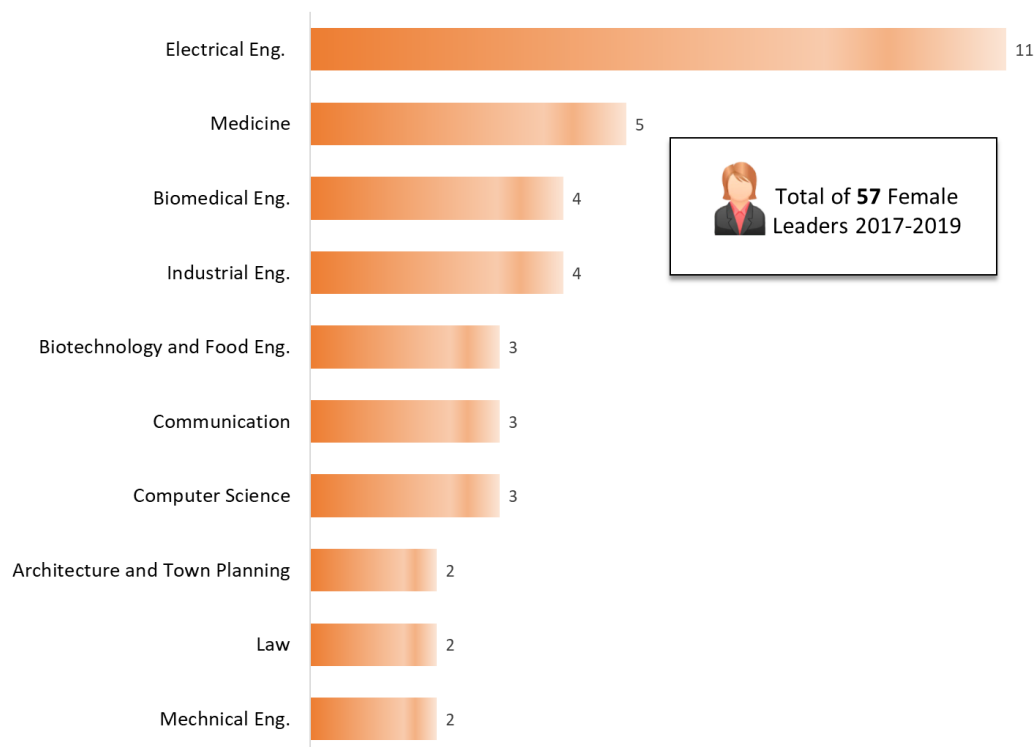

Source: Special processing of the BizTEC data by the Samuel Neaman Institute

794 people applied to the BizTEC program in 2017-2019 with a total of 306 projects. 18% of the applicants (144) were females. 19% (58) of the project were led by females

(stated as founder or CEO in the application form). Of 58 female leaders 11 studied Electrical Engineering, 5 studied Medicine, 4 Biomedical Engineering and Industrial Engineering each, and 3 came from Biotechnology and Food Engineering, Computer Sciences and Communications each.

A total of 81 projects were accepted to the program. 26% of the projects were female led.

Figure 13: Female leaders by the field of study

Source: Special processing of the BizTEC data by the Samuel Neaman Institute

Of 306 projects applied, 210 were all-male projects, 22 all-female and 74 mixed ones (at least one female listed in the team). While 20% of all-male projects and 14% of all-female projects were accepted to the program, 47% of mixed projects were accepted.

Figure 14: Acceptance rate of groups applied for BizTEC 2017-2019

Source: Special processing of the BizTEC data by the Samuel Neaman Institute

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Appendix A: Interviewees

Table 3: List of Interviewees (by first name)

Name	Firm / Organization	Position	LinkedIn	Other Women's Organizations
Adi Zamir	Pink of View	Founder & CEO	https://www.linkedin.com/in/adi-zamir-a1b905b/	WMN - Co-founder
Anat Shaked	Nexite	Co-Founder & CEO	https://www.linkedin.com/in/anatwebershakedd/	
Prof. Ayellet Tal	Technion	Professor / President's Advisor for Advancing Women in Science and Engineering at the Technion		
Baat Enosh	Intuit	Director of Strategy & Innovation	https://www.linkedin.com/in/baatenosh/?originalSubdomain=il	
Dana Gavish-Fridman	BGN Technologies	VP Entrepreneurship	https://www.linkedin.com/in/danagavishfridman/	
Dr. Dana Yarden	BioBetter	CRA & Co-Founder	https://www.linkedin.com/in/dana-yarden-32920910/	
Danielle Yoselevich	Apple	Software Engineer	https://www.linkedin.com/in/danielle-yoselevich-428813110/	She Codes; Technion Branch Manager
Efrat Hason	IDF	Team Leader		

Galit Arizon	Weezmo	Co Founder & VP Biz Dev	https://www.linkedin.com/in/galit-arizon-49604019/	
Prof. Havazelet Bianco-Peled	Technion / Sealantis	Professor / Founder		
Hedva Feldman	Amenity Analytics	Co-founder &CAO	https://www.linkedin.com/in/hedva-feldman-27aaa99/	
Dr. Hila Riemer	Ben-Gurion University	President's Advisor for the Advancement of the Status of Women in Academia	https://www.linkedin.com/in/hila-riemer-38b8838b/	
Hilla Ovil-Brenner	Barclays Tel Aviv Accelerator Program	Managing Director	https://www.linkedin.com/in/hillao/	Co-Founder of Yazamiyot
Irit Hillel	HP Tech Ventures	Partner	https://www.linkedin.com/in/irithillel/	
Keren Zukerman	FeezBack	Co-Founder & CEO	https://www.linkedin.com/in/kerenzukerman/	
Kheir Abdel Razek	Israel Innovation Authority	Program Manager at Israel Innovation Authority - Societal Challenges Division	https://www.linkedin.com/in/kheirabdelrazek/	
Dr. Kira Radinsky	eBay	Chief Scientist (IL) & Director of Data Science	https://www.linkedin.com/in/kira-radinsky/?originalSubdomain=il	

Lee Singer Snir	ProWoman Organization	CEO	https://www.linkedin.com/in/lee-singer-snir-71806244/	
Lena Levin	Via Surgical	Co-Founder & CEO	https://www.linkedin.com/in/lena-levin-7862b012/	
Limor BH Epstein	Data2Life	Founding Partner	https://www.linkedin.com/in/limorbh/	
Liron Azrielant	Meron Capital	General Partner	https://www.linkedin.com/in/lironazrielant/	
Prof. Marcelle Machluf	Technion	Dean (Faculty of Biotechnology & Food Engineering)	https://www.linkedin.com/in/marcelle-machluf-08a53739/	
Meirav Oren	Versatile Natures	CEO & Co-Founder	https://www.linkedin.com/in/meirav-oren/	
Merav Weinryb	Qualcomm Ventures	Managing Director, Israel and Europe	https://www.linkedin.com/in/merav-weinryb-00332/	
Michal Meiri	Agamon	Co-Founder & CEO	https://www.linkedin.com/in/michalmeiri/	
Michal Michaeli	EVA Ventures	Founder	https://www.linkedin.com/in/michalmichaeli/	
Mirit Kagarlitsky	Wenspire	Co-Founder & CEO	https://www.linkedin.com/in/miritkagarlitsky/	
Mor Assia	iAngels	Founding Partner & Co-CEO	https://www.linkedin.com/in/morassia/	

Natalie Refuah	Viola Growth	Partner	https://www.linkedin.com/in/natalie-refuah-b2b787/	
Niv Korah	Eva Ventures	Partner & Director of Business Development	https://www.linkedin.com/in/niv-korah-42689/	
Nora Nseir	Nurami Medical	Co-Founder and R&D Director	https://www.linkedin.com/in/noranseir/	
Dr. Orna Ben Yehuda	Technion	Adjunct Senior Lecturer	https://www.linkedin.com/in/orna-agmon-ben-yehuda-5001aa3/	
Rina Shainski	Duality Technologies	Chairwoman & Co-founder	https://www.linkedin.com/in/rinasha/	
Roni Ross	Panorama Software	Chairman & Founder	https://www.linkedin.com/in/rony-ross-7244642/	
Sarit Tresser	Timocco	Founder & Product Director	https://www.linkedin.com/in/sarit-tresser-%D7%A9%D7%A8%D7%99%D7%AA-%D7%98%D7%A8%D7%A1%D7%A8-9ba59815/	
Shahar Shalev	Intel Corporation	Software Developer	https://www.linkedin.com/in/shahar-shalev/	Former Biztec Winner
Shai Haim	BizTEC	Chief Mentor	https://www.linkedin.com/in/shaihi/	
Sharon Mirsky	Firedome	Co-founder	https://www.linkedin.com/in/smirsky/	
Dr. Sharon Shacham	Predix Pharmaceuticals (Acquired by EPIX Pharmaceuticals)	Co-Founder	https://www.linkedin.com/in/sharon-shacham-abb2a6b/	

Shuli Shwartz	Technion DRIVE Accelerator	Managing Director	https://www.linkedin.com/in/shuli-cohen-shwartz-3b14205/	
Sigal First	CTS Group	CEO	https://www.linkedin.com/in/first-sigal-58205233/	Chairwoman of the Technion Alumni Association
Dr. Tehila Ben-Moshe	Biond Biologics	CEO	https://www.linkedin.com/in/tehila-ben-moshe-173b57a/	
Timor Arbel-Sadras	Viola Credit	General Partner	https://www.linkedin.com/in/timorarbel sadras/	
Tzafi Erlich	SeeTree	CFO	https://www.linkedin.com/in/tzafi-erlich-b49b4421/	

Table 4: Interviewees by Sector

Sector	No. of interviewees
Industry	21
Investors	10
Academia	5
Industry / Nonprofit	2
Nonprofit	2
Military	1
Academia / Industry	1
Government	1
Investors / Nonprofit	1
Total	**44**

Interviewees' Startups by Sector[7]**:**

Digital Health and Medical Technologies

- **Agamon**: Agamon offers a healthcare intelligence platform that provides tools and services for a fast, efficient, and scalable way to access high-quality healthcare data and insights. The company's solution is designed to help health systems leverage their mass volumes of data to extract actionable insights. Agamon structures textual reports such as physician notes using advanced technologies including natural language processing and machine learning. After being structured, these reports become readily accessible to the healthcare ecosystem to drive efficiency, reduce risk, and improve health outcomes.

- **AMS Surgical Israel (Sealantis):** AMS Surgical Israel develops protein-free tissue adhesives based on proprietary alga-mimetic formulations that can be used in a wide range of surgical applications. The company's adhesive technology mimics the underwater adherence mechanism of algae. The company's first product, Seal-V, is a surgical sealant designed for use in various vascular procedures. Seal-V has proven to be safe, effective, and cost effective. It is strong, biocompatible, biodegradable, and easy to use. Seal-V can adhere to native and synthetic vessels, positioning it as a solution to control bleeding in vascular surgeries. The company's other products include Seal-G, a gastrointestinal bioresorbable sealant designed to secure gastrointestinal anastomoses to decrease lethal complications resulting from postsurgical leaks; and the Orthopedic Adhesion Barrier, an extra-articular bioresorbable gel designed to speed the recovery of injured joints by preventing tissue adhesions, thereby reducing disabling complications following surgical or nonsurgical joint injuries. AMS Surgical Israel technology has been developed under the umbrella of the Alfred Mann Institute at the Technion. In 2018, it received the CE mark for its Seal-G Surgical Sealant for gastrointestinal procedures.

- **Data2Life:** Data2Life develops solutions to provide easy access to patient-centered real-world evidence (RWE) analytics. Data2Life emphasizes the patient voice, distilling and analyzing patient-generated data from various sources and integrating it into traditional datasets. The company built a B2B drug intelligence

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[7] Data from Startup Nation Central Finder (

platform that yields mature products delivering holistic RWE, precise and personalized patient profiles, and predictive trends about their therapeutic journey. Data2Life invested heavily in artificial intelligence analytics, focusing on proprietary deep-learning algorithms for healthcare, cannabis, and drug development.

- **Nurami Medical**: Nurami Medical is a medical device company with a proprietary nanofiber and sealant technology for soft tissue repair. The company produces durable, highly flexible patches that seal undesired leakages and enhance tissue regeneration. Nurami's first soft tissue repair product, ArtiFascia, is a durable, biodegradable substitute patch for neurosurgeries that combines a porous fiber design with a smart sealant. The company is currently working on the next generation of ArtiFascia, which will be able to adhere to tissues without the need for sutures. Nurami Medical is a portfolio company of the NGT3VC incubator.

- **Pink of View:** Pink Of View is a medical start-up that developed a cloud-based mobile application that enables women to identify breast cancer at the early critical stages of the disease. The application ensures a high penetration rate to all populations worldwide and provides an initial evaluation of the disease, including a probability / likelihood score reflecting the individual's chance of becoming ill (the "Pink Indicator").

- **Timocco:** Timocco offers a gaming platform designed to help children exercise their motor and cognitive skills through noncompetitive, therapeutic virtual-motion games. Timocco games are designed to develop a child's abilities across a range of disorders, including ADHD, autism, cerebral palsy, DCD, dyspraxia, and learning disabilities, as well as during physical trauma rehabilitation. The Timocco experience provides a safe, educational, and empowering gaming environment for children and a platform that encourages coping with everyday difficulties, such as physical or cognitive dysfunctions. The activities are played using body movements, which are tracked using Timocco's software and tracking controllers.

- **Via Surgical**: Via Surgical has developed its FasTouch system to provide deployable, transfascial suture fixation for hernia repair that is strong and consistent, yet easily and rapidly deployed. FasTouch has lightweight, deployable sutures and provides a comprehensive fixation solution. The fixation strength of the sutures stems from the closed locked-loop suture concept. The minimal amount of material in the sutures may reduce foreign body response and chronic pain. Via Surgical has received U.S. FDA 510(k) clearance to commercialize FasTouch.

Security and Safety Technologies

- **Duality Technologies**[8]: Duality is developing innovative technology to empower Secure Digital Analytics Collaboration. With Duality's technology, enterprises can securely collaborate applying advanced analyses and Artificial Intelligence to data while it is encrypted, generating insights without ever exposing the raw data.

- **Firedome**: Firedome provides highly specialized, continuously evolving, and practical cyber-security software solutions for home IoT vendors. The company was founded by a team of cyber-security experts from Israel's elite cyber intelligence units, with a vision of securing a future with billions of home IoT devices and enabling home IoT vendors to keep pace with cyber threats.

- **Wenspire**[8]: Wenspire is a cyber security company that is the first to introduce a disruptive secure-by-design solution to protect, insure and safely share data with

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[8] Data from IVC Database.

3rd parties - overcoming the pain and limitations of traditional cyber measures and also eliminating risk assessment procedures.

Agro and Food Technologies

- **SeeTree**: SeeTree has developed an intelligence network that uses drones, machine-learning algorithms, and sensor technology to provide farmers with actionable analytics to help them monitor their crops and evaluate the strength of their trees. With SeeTree, farmers can make critical decisions based on accurate and consistent small- and large-scale data, connecting their actions to actual results in the field. The insights obtained from SeeTree help growers uncover problems, determine how to solve them, and assess the return on investment for each action taken

- **BioBetter**[8]**:** BioBetter presents a patent-protected innovative platform technology that dramatically simplifies and reduces the cost of manufacturing and purification of biologic drugs, while also ensuring reduced immunogenicity. The core technology is based on research conducted by Professor Shoseyov at the Faculty of Agriculture at the Hebrew University. The BioBetter R&D laboratory was established with the initial vision of securing a platform proof of concept with a set of target monoclonal antibodies (mAbs), followed by preclinical and clinical development up to license submission. The company successfully implemented the innovative platform in producing the human mAb "Humira", an antibody-based drug indicated for an array of inflammatory conditions, and has the capacity to build a broad pipeline of biopharmaceuticals.

Enterprise Solutions

- **Nexite**: Nexite is developing a connectivity platform that will enable users to engage with physical items as if they were digital, making retail more data-driven and personalized. The company's miniature tag can be embedded in an item and read by any smartphone, creating a digital representation of each item at any point from manufacturing to the customer's home. Nexite tags can be used to create automated in-store data for up-to-the-minute inventory, fitting room analytics, and real-time item location, as well as to enable mobile self-checkout and a data-based, personalized experience for shoppers.

- **Panorama Software**: Panorama Software offers business intelligence solutions that provide a new way to connect the data, insights, and people in an organization. Panorama's Necto solution leverages social decision-making and automated insights to help users gain insights more quickly, efficiently, and with greater relevancy. Panorama's OLAP technology was sold to Microsoft Corporation in 1996 and later rebranded as SQL Server Analysis Services and integrated into the SQL Server platform.

Fintech and eCommerce

- **Amenity Analytics**: Amenity Analytics has built a text analytics SaaS platform that allows customers to identify actionable signals from unstructured text data. Amenity Analytics' technology combines machine learning, natural-language processing, and sentiment analysis to provide rapid, customizable insights from complex text sources, resulting in high levels of accuracy. Amenity Analytics' specialized offerings for hedge funds, financial and banking services, insurance, and media are being utilized by Fortune 100 companies. Amenity Analytics was named a cool vendor in "Cool Vendors in AI for Banking and Investment Services, 2018" by the Gartner Research Group. Amenity was also included in Gartner's "Market Guide for Text Analytics 2018".

- **Feezback Technologies**: Feezback is powered by state of art technologies of AI, Big Data and Crowd Sourcing, and is a brand-new way for people to interact with their money. Feezback builds a digital relationship with consumers and offers the right services to the right users at the right time based on a 360 degrees view.

Social Media and Advertising

- **Weezmo**: Weezmo helps businesses identify customer traits and purchasing patterns and use that data to better understand customers. The software engages with customers from the minute they purchase something at the store via digital receipts. This digital receipt solution lets businesses extract data from each receipt, track spending habits, and reach customers through omni-channel marketing, offering personalized campaigns (coupons, deals, and more) that make buyers return.

Software Applications

- **Versatile Natures**: Versatile Natures is the developer of the CraneView system, a process control solution that provides comprehensive site management for construction sites using a plug and play IoT device and onsite cloud computing. The system automatically gathers and analyzes relevant data from the construction site and provides real-time alerts, actions, and insights to streamline the building process.

Pharmaceuticals

- **Biond Biologics**: Biond Biologics is a discovery and development company specializing in cancer immunotherapy and autoimmune disorders. The company has two divisions: one providing development services in the framework of an agreement with Pfizer, and the other developing independent products. Biond has a long-term collaboration with Pfizer and BioRap Technologies to develop early-stage targets for inflammatory autoimmune disorders (PoC to IND).

Appendix B: Entrepreneurial activities at the Technion

The following mapping of entrepreneurial activities at the Technion is taken from Bentur et. Al. (2017)[9],

Actions at student level

Formal programs: degrees, certificates:

- **Bronica Entrepreneurship Center**: 18 academic courses, Minor in Entrepreneurship (Certificate from the Under-Graduate school), Start-Up MBA. http://liee.ntua.gr/wp-content/uploads/2015/05/The-Entrepreneurship-Center_visits.pdf

- **StartUp MBA (Faculty of Industrial Engineering and Management):** The Azrieli StartuUp MBA program is a unique program that offers a professional graduate degree in business administration with focus on entrepreneurship, innovation, and technology management. The program is highly practical and encourages students to use their learned toolkit to initiate their own startup companies. This is an intensive one-year full time program that brings in some of the best lecturers in the world while providing students with the opportunity to interact and learn from entrepreneurs and professionals in the Startup Nation.

- **Technion International School**: four Study Abroad courses in Entrepreneurship and Innovation. https://int.technion.ac.il/semester-programs/

- **Continuing Education and External Studies**: Practical Business Entrepreneurship. https://cont-edu.technion.ac.il/programs/ניהול-יזמות-ושיווק/יזמות-עסקית-פרקטית/ Fund Raising for startups. https://cont-edu.technion.ac.il/programs/ניהול-יזמות-ושיווק/גיוס-כספים-למיזמי-סטארטאפ/

Extra-curricular: contests, clubs, internships, etc.

- **Technion 3DS (3 Day Startup):** 3-Day Startup (3DS) is a 60 hour-long workshop in which one — as one of a select group of top students from engineering, business, design, and other diverse fields — works as part of a small team to launch a high-tech company and pitch one's vision to investors. https://technion3ds.technion.ac.il/

- **eClub:** Bi-weekly networking events. Participants meet leading entrepreneurs and share ideas in an informal, relaxed environment. The goal: fun and inspiration (http://liee.ntua.gr/wp-content/uploads/2015/05/The-Entrepreneurship-Center_visits.pdf)

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[9] Entrepreneurship at the Technion- Establishment of Policy:

בנטור ארנון , ברזני אלה , גץ דפנה , דה-האן עוזי , כץ-שחם אושרת , מי-טל שלמה . יזמות בטכניון מסמך רקע לגיבוש מדיניות טכניונית חיפה, ישראל מוסד שמואל נאמן, 2017 .

Https://Www.Neaman.Org.Il/Entrepreneurship-At-The-Technion-Establishment-Of-Policy

- **BizTEC:** BizTEC is a non-profit, annual national competition that helps students promote their ventures. http://www.biztec.org.il/

- **The Technion Dream Factory**: One day competition in which Technion students and graduates present their solutions for problems provided by leading companies. This event is intended to connect Technion quality with industry level challenges. Some challenges are 'Startup Material' and others are a fun project to solve. In both cases, the team that comes up with the best solution and manages to convince the companies is awarded a prize.http://www.biztec.org.il/?page_id=3497

- **The LAPIDIM Excellence Program (Computer Science Department):** an exclusive program for first-rate computer science students with the potential for leadership or entrepreneurial pursuits. The program targets the next generation of outstanding leaders who will take up key positions in the hi-tech industry. http://lapidim.cs.technion.ac.il/ In addition to their studies in the CS track of their choice, LAPIDIM students participate in extracurricular courses that enhance their managerial and entrepreneurial skills.

  http://lapidim.cs.technion.ac.il/about/overview/

Actions at faculty level

Enhancement of relations with external partners in the business community

- Requires further investigation

Actions at alumni level

Enhancement of relations and involvement of alumni – education of students

- **Technion For Life (TFL) (The Technion Alumni Organization):** The Project goals are set to support the implementing of Technion graduates' innovative technological developments, in addition to grooming the nation's future business-leadership with corporate social responsibility http://www.technion-alumni.org/.upload/amos/info%20in%20english%20-%20TFL.pdf

Consulting and mentoring for technology transfer

- Requires further investigation

Technology Transfer Office

Commercialization of university technology

- **Technion Technology Transfer (T3):** licensing of Technion intellectual property (IP) to established companies. http://t3.trdf.co.il/

- **BioRap Technologies Ltd**: Technology transfer company that is built upon the creative innovations and patented technologies developed by the research scientists of the Rappaport Family Institute for Research in the Biomedical Sciences at the Technion. (http://www.bio-rap.com/)

Actions to promote entrepreneurship amongst staff and students, beyond traditional commercialization role – serving as point of contact, internships, etc.

- T3 in the Lounge (Idea Wednesdays)
- **Alfred Mann Institute (AMIT) (T3):** AMIT serves as a hub for Technion students, faculty and alumni who envision the turning their discoveries into medical devices for the benefit of patients and healthcare providers. AMIT is an important part of the Technion entrepreneurial ecosystem, providing a unique platform for students, faculty and alumni to build sustainable biomedical companies. It provides the practical tools and the funding necessary to build and foster new biomedical ventures. http://www.amitechnion.com/Why-work-With-AMIT
- **T-Factor (T3)** (Requires further investigation)

Facilitating University-Industry collaboration

Fundraising for research

- **Technion Liaison Office:** promotes research and development opportunities for Technion researchers and partners in Israel and around the world. http://www.liaison.trdf.co.il/

Providing support to industry by allowing use of special university facilities

- (see research centers)

Industry-oriented research centers

- Requires further investigation

Interdisciplinary Research Centers

- **Lorry I. Lokey Center for Life Sciences and Engineering:** The Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering was launched in 2006 to combine the capabilities of the Technion's engineering faculties with those of life sciences and medicine. (http://lokey.technion.ac.il/inner/46)

- **The Nancy and Stephen Grand Technion Energy Program: The** Nancy and Stephen Grand Technion Energy Program brings together the best science and engineering researchers to work in a broad interdisciplinary track to discover and exploit alternative and renewable energy sources, to search for and develop alternative non-carbon based fuels, to seek solutions for more efficient energy use, and to reduce the environmental damage caused by the production and burning of fossil fuels. (http://gtep.technion.ac.il/about.php?LinkID=11)

- **Russell Berrie Nanotechnology Institute (RBNI):** Supported by the Russell Berrie Foundation, the Government of Israel through TELEM, and the Technion, RBNI was inaugurated in 2005 and aims at positioning the Technion and the State of Israel at the forefront of global Nanotechnology research and development. http://rbni.technion.ac.il/about

- **Technion Autonomous Systems Program (TASP):** The concept driving the Technion Autonomous Systems Program is to develop a research matrix with

multidisciplinary teams that will define and develop principles and applications enabling autonomous solutions in various areas of human endeavor. (http://tasp.technion.ac.il/index.php/en/tasp-divisions)

- **Technion Computer Engineering (TCE) Center:** The Technion Computer Engineering Center is designed to lead worldwide computer engineering research and education, and to operate as a focal point for academic and industrial collaboration. The TCE Center provides the foundation and facilities for computer engineering research and education. Its unique model facilitates an unprecedented platform for industrial-academic collaboration and creates a novel eco-system beneficial to both. (http://tce.technion.ac.il/about-2/)

Research Institutes

- **National Building Research Institute (NBRI)**

- **Norman and Helen Asher Space Research Institute (ASRI):** ASRI was established in 1984. Its members are professors in multiple academic departments. The research and technical staff are involved in research and development of all aspects related to space technology and space science. http://asri.technion.ac.il/node/3

- **Solid State Institute (SSI)**: The Solid State Institute is an interdisciplinary research center designated to house and serve scientists from various faculties who are interested in the study of solids and solid interfaces. Pure and applied research projects, some of which may ultimately be of use to industry, are being carried out at the Institute in many individual and / or collaborative research efforts. The physical proximity fosters cooperation between scientists from different disciplines and different faculties that otherwise would not take place. http://solid-state.technion.ac.il/about/aboutus.php

- **Stephen and Nancy Grand Water Research Institute (GWRI)**: The Israeli national institute for research in the science, technology, engineering and management of water resources. http://schulich.technion.ac.il/Grand-Water-Research-Institute/

- **Transportation Research Institute (TRI): This** serves as a center and framework of cooperation for faculty members from various Technion units whose research covers a wide spectrum of transportation subjects

  (http://tri.technion.ac.il/Transportation/Templates/ShowPage.asp?DBID=1&LNGID=1&TMID=84&FID=268)

Engagement in regional and local economic development efforts

Building innovation driven activities to help surrounding cities and communities prosper

- Requires further investigation

Other activities

- **Entrepreneur in Residence program (T3),** in which entrepreneurs are engaged in a joint effort to identify applications for technologies and to form start-up companies.

- **AMIT's Grassroots Program** aims to provide newly formed companies with all the required tools to commercialize their concept. This is achieved by providing a comprehensive set of expertise including (a) experienced engineering, (b) state-of-the-art facilities, (c) intellectual property strategy, (d) clinical research expertise, (e) seasoned leadership, (f) financial resources, (g) business development guidance, (h) team recruitment support, (i) regulatory guidance, and (j) subsequent capital investment. http://www.amitechnion.com/About-The-Program

- **Knowledge Center for Innovation**: The Knowledge Center aims to serve as a motivating factor that impacts the research- industry, and policy-making innovation initiatives. The Center initiates and supports inventive programs to enhance innovation at all levels - individual, team, organization, national and global levels. The Center develops, promotes and implements research-grounded methodology and tools along the innovation process, from problem identification, to idea generation and selection, and through implementation and market penetration. The Center encourages and facilitates open innovation through cooperation between local and global organizations, between academia, industry, and policy makers, and via virtual and face-to-face interactive innovation forums. (http://innovation.technion.ac.il/page.asp?id=6)

Appendix C: Worldwide entrepreneurship programs for female students

UK

Imperial College, London

WE Innovate

A program specifically launched for female student entrepreneurs and providing access to funding, mentoring, and exposure to investor networks to help women support their fledgling businesses.

WE Innovate is Imperial's flagship female entrepreneurship education program designed to support the next generation of women entrepreneurs to accelerate their startups. The six-month program supports female students, developing an early stage business idea, to advance their leadership and entrepreneurial skills.

WE Innovate accelerates female-led startups through a tailored program which gives Imperial students the opportunity to attend masterclasses on topics like customer discovery, design and pitching; business coaching and idea surgeries and pitch training. WE Innovate also gives students opportunities to network and meet with investors, entrepreneurs and business leaders. The program culminates in a Final Showcase where five finalist teams pitch for the £30k prize fund.

King's College, London

[Women Entrepreneurs Programme](#)

The Women Entrepreneurs Program is a three-year program, open to all King's female students, staff and alumni and increases their exposure to entrepreneurial skills, knowledge sharing and community building.

Activities focus on inspiring women with the message that entrepreneurship can be a career pathway and can help develop the entrepreneurial skillset. WEP creates a community of women with an entrepreneurial spirit, who are empowered to support each other's ideas and ventures and who share learning and experiences. The support system includes discussion events with industry leaders, practical workshops, networking opportunities, mentoring and a two-day retreat.

University of Winchester

[Women in Digital Enterprise Programme](#)

Women in Digital Enterprise (WiDE) aims to support women-led businesses to achieve double-digit business growth in less than a year through targeted workshops.

WiDE is specifically designed to help women's led businesses overcome traditional ways of working that do not take full account of the powerful dynamics of digital 'connectivity' with respect to enlarging their potential to make a lasting social and economic contribution.

Through a series of 6 days of participative workshops, some delivered in person, some delivered online, delegates will identify growth opportunities and learn how to embrace and exploit them.

The Programme is offered by The University of Winchester School of Business in collaboration with NatWest Bank and sponsored by the Higher Education Funding Council for England.

USA

University of San Diego

[Women Innovators Initiative](#)

The Center for Peace and Commerce recognizes that when women take the lead as social innovators and entrepreneurs they greatly contribute to the social transformation of their communities. As a means of encouraging students to explore the possibilities of using social entrepreneurship as a vehicle for positive social impact, the CPC launched the Women Innovators Initiative (WII) in 2015. The purpose of WII is to provide support and encourage the development of female students as social entrepreneurs, innovators, and founders.

The toolbox includes:

- Meaningful field experiences and dialogue addressing the challenges and opportunities faced by women creating social change through innovative initiatives.

- Networking opportunities and alliance-building with women innovators and founders in the community.
- Mentorship of female students by successful community professionals.
- Seed funding opportunities for launching social ventures via the Women Innovators Track in the Fowler Global Social Innovation Challenge.

Stanford Business School

"Entrepreneurship from the Perspective of Women"

The "Entrepreneurship from the Perspective of Women" class began as a short seminar about a decade ago. Since then, it has been taken by hundreds of people, most of them women. Lecturer, entrepreneur, and venture capitalist Fern Mandelbaum began teaching the class in 2018 year, and in 2019 helped expand it into a full-quarter course.

Of the 25 speakers, 20 of them are women CEOs and VCs, from places like Eventbrite, Ditto, Medallia, Wildfire/Google and Scale Ventures, who come and share their stories.

Women Entrepreneur Program

The BNP Paribas Wealth Management Executive Program for Women Entrepreneurs brings together a talented group of women entrepreneurs from across Europe, Asia and the United States.

Over the course of this annual week-long program at Stanford Graduate School of Business, participants attend a wide range of classes led by Stanford Graduate School of Business faculty members on the Palo Alto campus. The curriculum is tailored to meet the needs of highly accomplished businesswomen, offering a unique mix of knowledge, skill acquisition and development.

In addition to providing an unparalleled opportunity for personal and professional development, the Executive Program for Women is an unmatched forum for cross-border (both professional and geopolitical) discussion and global networking.

The ultimate goal of the Executive Program for Women is to facilitate development of effective leadership skills, acquisition of efficient management practices, effective navigation of a daunting maze of external growth opportunities and formal support for professional and effective mentoring.

Babson College and F.W. Olin Graduate School at Babson College

Women Innovating Now (WIN) Lab Intensity Track

Women Innovating Now (WIN) Lab Intensity Track offers MBA students the opportunity to gain course credit for an intensive women's accelerator experience offered by the WIN Lab. Women entrepreneurs are transformed into CEO's through rigorous entrepreneurship coursework, applied experiences, mentoring, and milestone achievements designed to move early-stage ventures from prototype to successful launch and growth.

The mission is to close the gender-gap in business, one female leader at a time, by educating and empowering women to create social and economic impact through industry and innovation.

Award-winning programs, exclusive events, access to cutting-edge experts, and hands-on coaching impact a diverse set of stakeholders from around the world. They include:

- The Scholars program for high-performing female undergraduate students
- The Women Innovating Now (WIN) Lab® accelerator for women entrepreneurs building scalable businesses
- Mentor programs designed to educate both undergraduate and graduate students on the value of developmental relationships
- Executive Education built for established women leaders striving to make a strategic economic impact
- A lively, supportive, and growing community of faculty who do groundbreaking research on the economic value women entrepreneurial leaders bring to the world.

Monash University

Women in STEM and Entrepreneurship (WISE) Program

This free program aims to support and nurture an entrepreneurial mindset in this evolving area in the next generation of women. Monash University invites schools to nominate a team of four female students (studying year 10 at a Victorian school in 2019). The program includes:

- One day 'Internet of Things' workshop
- Two-day entrepreneurial workshop
- Trip to Silicon Valley

Carnegie Mellon

The Tepper Women in Business Club

The Tepper Women in Business Club was created to help women thrive through aspects such as support, education and empowerment.

THE MISSION

- Empower women to grow as confident, successful leaders
- Promote gender equity through programming for the Tepper community
- Foster an inclusive community for our members and alumni

FLAGSHIP EVENTS

Annual Conference: The Annual Leadership Conference takes place in the spring and showcases a different theme every year with opportunities to participate in workshops and network with local executives.

Alumna of the Year Luncheon: The annual Alumna of the Year Award recognizes the accomplishments of an individual who demonstrates leadership in her profession and ongoing contributions to the Tepper community.

University of Washington

The Undergraduate Women in Business

UWiB seeks to promote greater awareness and understanding of ongoing issues and challenges that women presently face in business, while providing professional relationships with female business leaders for the undergraduate community. This is accomplished by providing networking and career opportunities, fostering a sense of community between undergraduate female business students and the greater business community, providing educational seminars and workshops on a variety of topics, promoting awareness of discrimination and other issues that business women continue to face within this competitive industry and educating young businesswomen, preparing them for their future in business.

TheGeorge Washington University

Women's Entrepreneurship

Hot Mommas® Project

The Hot Mommas® Project is an award-winning social venture that pairs the world's largest digital case study library of female role models with cutting-edge teaching tools.

Springboard Enterprises

Springboard Enterprises is the premier platform where entrepreneurs, investors, and industry experts meet to build great women-led businesses. Springboard educates, sources, coaches, showcases and supports high growth companies seeking equity capital for expansion. Springboard's record is unmatched. Since January 2000, the team has helped 503 women-led companies raise more than $5.5 billion in equity financing, including 10 IPOs, and legions of high value. 82% of Springboard companies are still in business, generating $4 billion in revenues and creating tens of thousands of new jobs.

Elizabeth J. Somer's Women's Leadership Program

The Elizabeth J. Somers Women's Leadership Program (WLP) is a selective, year-long, living and learning program for freshmen women of any school at the George Washington University.

The dynamic curriculum emphasizes exploration and development of women's leadership through academic courses and weekly symposia. WLP symposia offer special lectures, workshops, and experiences that draw on the unique resources of Washington,DC and brings students together with women of achievement and leadership from many professional fields.

Smith College (women's college)

Jill Ker Conway Innovation & Entrepreneurship Center

The Jill Ker Conway Innovation & Entrepreneurship Center is designed to support and educate the next generation of innovators. It is driven by students' demand to be constructive in the world. The Jill Ker Conway Innovation & Entrepreneurship Center builds on the programming of Smith's Women and Financial Independence program, a successful initiative that was launched in 2001. Its mission is to:

- Support students, faculty and alumnae to generate, share, test and refine new ideas that create value.
- Provide instruction, mentorship and resources to help Smith entrepreneurs convert their passions into viable enterprises.
- Empower Smith students to make sound financial decisions for themselves and their ventures.

Through all aspects of its programming, the center fosters cross-disciplinary thinking, risk mitigation, financial acumen and business planning capabilities. They enable students to work collaboratively on projects that address real-world challenges.

Cornell Tech

WiTNY

WiTNY started in 2016 with a clear goal: to build a deeper bench of tech talent in NYC.

As a collaborative initiative with Cornell Tech, the City University of New York (CUNY), and industry partners, WiTNY propels women-from high school through graduate school-into rewarding tech careers. The programs focus on education, work experience, and community building.

The tech market in NYC is growing more than three times faster than any other industry job market. And yet, today, less than 1% of college women in the U.S. are graduating with degrees in computer science.

In partnership with academia, industry, the government, and nonprofits, WiTNY offers educational courses, work experiences, and community-building opportunities for women in New York.

DePaul University

Women in Entrepreneurship Institute

DePaul's Driehaus College of Business and Kellstadt Graduate School of Business are ranked among the top business schools in Chicago and the nation. The Women in Entrepreneurship Institute is the nation's first comprehensive institute for women founders that integrates academic learning, research, incubation, funding and public policy. Launched in July 2018, the Institute supports women entrepreneurs through academic research and programs as well as initiatives that invest in the success and sustainability of women-owned businesses.

Phase 1: Entrepreneurial Education

- Academic courses that are part of DePaul's highly ranked entrepreneurship program.
- Business Pitch Competition awards merit-based funding to student businesses involved in the institute.

- Startup Incubator Workspace - the incubator serves DePaul students through a cohort-driven shared co-working space within the Coleman Entrepreneurship Center.
- The annual fellowship supports research in entrepreneurship and gender at DePaul.

Phase 2: Business Acceler8Her Program

Designed and delivered by successful women entrepreneurs, the institute's Acceler8Her program aims to prepare women to bring their business to market, or help them scale their existing business and enter new markets.

Salem College

[Center for Women in Entrepreneurship and Business](#)

The Center for Women in Entrepreneurship and Business (CWEB) at Salem College in North Carolina, was established in 2002 through the generosity of the Kimbrough family in order to:

- Expand collaboration with the local and regional business community.
- Foster programs that immerse students in the global business environment.
- Assist in development of mentoring experiences and internships for students.
- Sponsor distinguished speakers on current topics in business and economics.
- Highlight the accomplishments of professional women in business communities .

Its mission is to give Salem students a distinct advantage in the marketplace through promoting Salem as the intellectual and physical center for the region's professional women and serving as a vital hub linking their students with professionals in the outlying business, government, and academic fields.

Miami University

[Advancing Women in Entrepreneurship](#)

AWE offers innovative education and relevant experiences to engage their students at their point-of-interest and embed them in entrepreneurial networks around the country. Through AWE, students can take part in:

- The winter term program - Designing Your Life - which immerses them in diverse entrepreneurial environments through onsite visits to female founders in Cincinnati and San Francisco.
- The spring semester course - Women & Entrepreneurship - which tackles the internal and external barriers facing women in entrepreneurial environments and empowers and equips them with alternate techniques to turn challenges into opportunities.
- The student organization that runs innovative projects and campaigns to further AWE initiatives across Miami's campus.
- Summer internships with female founders and business leaders hosted in the key alumni networks around the Midwest.

University of Hartford

Entrepreneurial Center & Women's Business Center

The Entrepreneurial Center & Women's Business Center is part of the University of Hartford's Barney School of Business, named one of the nation's most outstanding business schools by The Princeton Review.

Its missions are:

- From Startup to Expansion, Making Your Vision a Reality
- Stay in Touch

The tools:

- Access loans and grants
- Write a business plan
- Develop a social media campaign
- Market your brand
- Access government contracting
- Manage your finances
- Develop exporting opportunities

Human Capital