

# **Building & Enhancing Mexico's Entrepreneurial Culture: Powerful Narratives As the "Missing Link"**

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## Abstract

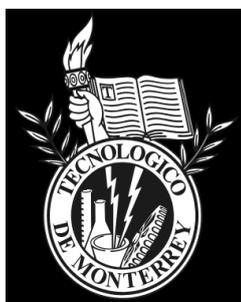
This essay proposes a method for building and enhancing Mexico's entrepreneurial startup culture, by creating and disseminating powerful narratives or stories, about startups, as a crucial often-missing link in the causal entrepreneurial chain. It reviews and summarizes key research papers published in the last four years or so and draws lessons from Israel's experience.

**“Stories and narratives have been shared over centuries in every culture as a means of education to create worlds of shared understandings and meanings. Stories create their own bonds, and their meanings constitute powerful means for replacing the existing ideology with a new mindset. Hence, the ability to construct and communicate stories that enable and produce action to make these stories ‘come true’ is crucial in entrepreneurship.**

Source: Neergaard <sup>1</sup>

### 1. Background: Tecnológico de Monterrey & Technion - Israel Institute of Technology

Tecnológico de Monterrey is a private university system founded in 1943 in Monterrey, México. It has 31 campuses located across 25 cities in the country. It has 91,200 students, of whom 57,066 are undergraduates.



Technion-Israel Institute of Technology was founded in 1912, in Haifa, Israel, and enrolled its first class in 1924, 24 years before the State of Israel was founded. It has 14,000 students, in 18 faculties, of which over 9,000 are undergraduates.

Both Tecnológico de Monterrey and Technion have similar roles and visions. Israel's high-tech industry, the country's growth engine, was born at Technion and one in every four of its graduates launch a startup sometime during their career. Tecnológico de Monterrey, too, as the MIT of Mexico, generates excellence in scientific research and its graduates are launching startups in growing numbers.

Frenkel and Maital <sup>2,3</sup> surveyed over 20,000 Technion graduates and processed over 4,000 responses, in order to quantify Technion's contribution to Israel and the world. They found that over half the graduates work in industry, and a fifth, in R&D. Of those in industry, three-quarters are employed in high-tech. A quarter of the graduates

are CEO's or VP's, and some two-thirds in total hold senior management positions. The rate of return on investment in human capital created by Technion was estimated to be between 97 and 197%, an astronomical figure, confirming similar studies of social return on investment in human capital in other universities.<sup>i</sup>

Guerrero et al.<sup>4</sup> studied data from 11,569 graduates from 30 Tecnológico de Monterrey campuses across Mexico, in 21 cities. Here are their main findings:

- “Graduates who have job stability in the public or private sector are less likely to create startups than those who have had prior entrepreneurial experience” (p. 166).
- Many countries, such as (for example) France, have superb creative engineers, state-of-the-art technology, strong financial markets – but lack entrepreneurial drive. Part of the reason: The plentiful well-paying secure public-sector jobs, driven by the large public sector.
- “For students and graduates, entrepreneurship is a viable career path in the uncertainty and complexity context of a transitional [Mexican] economy... universities are natural environments where students are effused by entrepreneurial mindsets, values, behaviors and skills...” (p. 167).

See Maital and Barzani<sup>5</sup> for a study of how universities can best foster entrepreneurship among their graduates, including a linear model of the startup decision, beginning with ‘awareness’ and moving through experiential encounters toward the actual startup launch.

Startups require capital. In Israel, the venture capital (VC) industry got a strong boost when the Government of Israel adopted the unorthodox policy of launching a government VC fund, Yozma.<sup>ii</sup> This fund basically insured foreign investors against downside risk, while offering them substantial upside profit. It was a powerful catalyst for what became a large and prosperous VC industry in Israel.

In Mexico, a not dissimilar approach was adopted. A quasi-governmental entity, Fondo de Fondos (Fund of Funds) launched Mexico Ventures I, which invests directly in startups, in part, and in part in national VC funds. And in 2013, INADEM (National Institute of the Entrepreneur) was launched, which also supports VC funds.

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<sup>i</sup> This study was inspired by earlier research on MIT: “A direct extrapolation of the survey data indicates there are 25,800 currently-active companies founded by MIT alumni/ae, employing 3.3 million people and generating annual world revenues of \$2 trillion, thus comprising the 11th largest economy in the world.” Edward B. Roberts and Charles Eesley (2009). *Entrepreneurial Impact: The Role of MIT*. MIT Sloan School of Management. For years, MIT’s graduating class was only 1,000, and later, 1,500.

<sup>ii</sup> “Established in 1993, Yozma invested around \$80 million for 40% stake in ten new venture capital funds. To further attract foreign investors, the program offered them insurance covering 80% of the downside risk and gave them the option to buy out the government’s share at a discount within five years (which was later exercised in eight of the funds). To minimize risk, the funds were required to coordinate many of their investments. Yozma also set up its own \$20 million fund to invest directly in small companies. Of its 15 portfolio companies, nine went public or were acquired. Yozma was the catalyst for the Israel’s venture capital industry.” ([Source](#))

But perhaps the most significant development was that wealthy Mexican families began repatriating capital held abroad and launching family offices, to invest in Mexican startups. Between 2009 and 2017 some 73 new VC funds were launched, with \$1 billion in capital commitments. Error! Bookmark not defined.

Mexico and Israel are over 12,000 kms. apart. Yet Tecnologico de Monterrey and Technion share one important characteristic: *A culture of entrepreneurship*. In both universities, it is this culture that appears to be the deepest and strongest force that drives entrepreneurial aspirations among graduates.

Culture is the knowledge, belief, and behavior of a nation or group of people, or, the outlook, attitudes, values, morals goals, and customs shared by a society. The culture of entrepreneurship is defined by some as “a process of storytelling” <sup>6</sup>, because ‘stories’ embody values, goals, customs, attitudes and behaviors in a concrete pragmatic and understandable manner that is communicated, sometimes virally, and ultimately drives behavior.

Adequate venture capital is a *necessary* condition for startups to thrive. But it is far from a *sufficient* condition. For a startup culture to thrive, it is vital that science and engineering graduates in large numbers *aspire* to become entrepreneurs. And for that to happen, an appropriate, catalytic culture which drives that aspiration is required. Stories are a key part of such a culture.

This essay reviews recent research on the role of powerful narratives, or stories, in fostering entrepreneurship.

## 2. The Foundations of Entrepreneurial Culture: From Economics to Sociology

Entrepreneurship, as an academic concept, has been captured and colonized by economists, almost from the outset.

In the 1930’s, economist Joseph Schumpeter defined “entrepreneur” as one who converts a new idea or invention into a successful innovation. Such innovation, in turns, generates new products and even entire new markets, driving job creation, economic growth and wealth.

In 1957 MIT Professor, later Nobel Laureate, Robert Solow showed that four-fifths of the growth in US output per worker was attributable to technical progress (i.e. innovation). In recent decades, the economic theory of endogenous growth – growth driven by internal processes – has gained prominence and won Nobel Prizes for its proponents. Within this model, some economists have recognized the crucial role played by non-economic forces, specifically culture. <sup>iii,7</sup> But until recently, the tools of conventional economics proved inadequate to adequately expand and elucidate on

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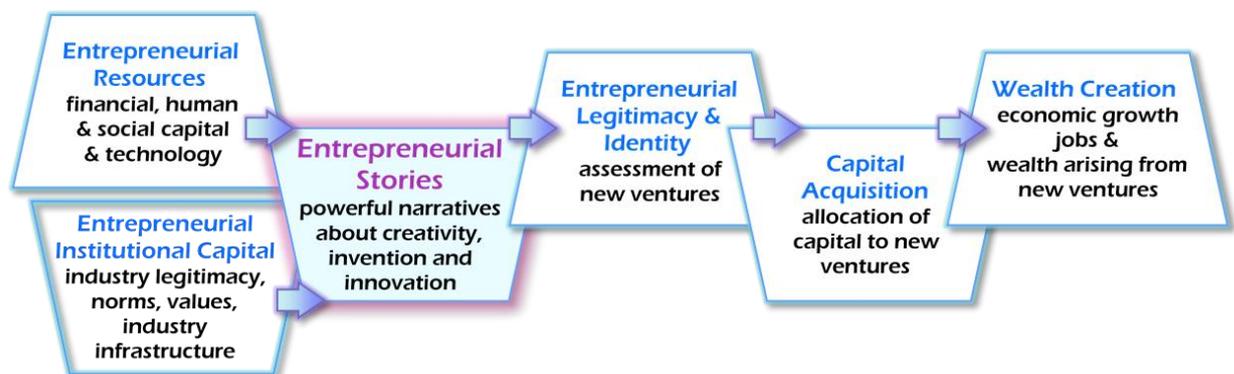
<sup>iii</sup> “ Sustained economic growth is everywhere and always a process of continual transformation. [The sort of economic progress that has been enjoyed by the richest nations since the Industrial Revolution](#) would not have been possible if people had not undergone wrenching changes. Economies that cease to transform themselves are destined to fall off the path of economic growth.” Source: Howitt <sup>7</sup>

what precisely creates and drives an entrepreneurial culture. Sociology has come to the rescue.

Led by Lounsbury and Glynn's seminal 2001 paper<sup>6</sup> and lately, their new 2019 book<sup>8</sup> and article (Lounsbury et al.<sup>9</sup>), the tools of sociology have been focused on entrepreneurship, with emphasis on narratives and stories as a key 'missing link' in the culture of startups. It is significant that today's leading economic thinkers, too, are increasingly recognizing the role of narratives; see for instance Nobel Laureate Robert Shiller's new book and article<sup>10,11</sup> on "narrative economics". His book<sup>11</sup> reveals what economists' 'daily bread', statistics, completely miss, and how stories become viral, much like epidemics of disease, only far faster. The trend toward "a broader interdisciplinary engagement beyond economics" and the "fruitfulness of foregrounding the role of culture" [Lounsbury et al.<sup>8</sup>, p. 1214] is growing in importance.

The Figure below shows graphically where stories and narratives fit into the broad entrepreneurial process. (See Figure). Of course, resources, capital and infrastructure are also necessary ingredients, at the outset. But early in the process, powerful stories about entrepreneurs and startups that change the world drive university graduates in science and engineering to become aware of, and then become motivated by, the option to launch their own business rather than join an existing organization. All the other links in the startup chain are vital; but the element of 'stories', early in the chain, has often been neglected, even though over five decades of research on creativity have revealed that the variable most highly correlated with creativity is motivation (See <sup>12</sup>, chapter 7).

The role of powerful stories has been recognized very early at Technion. In 1987/8, 2011 Nobel Laureate in Chemistry, Prof. Dan Shechtman, initiated a General Studies course on Entrepreneurship that comprised talks by entrepreneurs, recounting their successes and especially their failures. The course has been held yearly ever since, with some evidence that it has brought increased awareness of the startup option among Technion students<sup>5</sup>. A compilation of stories about Technion alumni startups was prepared and has proved popular<sup>13</sup>. See below for an example of such a story – the invention of a device that enables those confined to a wheelchair to walk (Rewalk).



**Figure. From Resources & Stories to Wealth Creation: Narratives as a Missing Link**

Source: Adapted from Lounsbury, M., & Glynn, M. A. (2001). Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources. *Strategic management journal*, 22(6-7), 545-564.

## Stories That Motivate: “ReWalk - I Can Walk!”

Like many entrepreneurs, Technion graduate Dr. Amit Goffer created an innovation to solve a personal problem.

Goffer had worked for Elscint, a medical imaging business, and later started a company to provide real-time MRI (magnetic resonance imaging) images for brain surgery. But after a terrible all-terrain-vehicle accident left him paralyzed and dependent on a wheelchair, he...asked an audacious question: *“How can I create a device that enables people who cannot walk, to walk by themselves?”*

Goffer came up with a concept, built a prototype himself, and later launched a startup called Argo Medical Technologies (now ReWalk Robotics), to produce it.

The ReWalk is an exo-skeleton (outside-the-body skeleton) that uses electronics to allow paraplegics to stand on their own feet and walk at a normal pace of two kilometers per hour – even to climb stairs. It has potential both as a “walker” and as a rehabilitation device to help patients recover from strokes or injuries.

A demonstration of the ReWalk was conducted at the company’s office in a small industrial park in Yokneam, outside Haifa. Attached to a disabled person’s legs, it uses an electronic sensor on the user’s wrist to move each leg forward when the user leans forward. Its battery power is carried in a small backpack, and it makes an unobtrusive whirring noise. The ReWalk integrates software, electronics, physics, mechanical engineering and ergonomics – requiring state-of-the-art technology and knowledge in all those fields. Goffer himself cannot use the device, as he is quadriplegic. But he estimates that 500,000 of the two million wheelchair users in the United States could benefit from the ReWalk. With venture funding and 15 employees, he has started marketing the device both in Europe and the U.S., where it is in use in a Philadelphia rehabilitation center and a New York Veterans Administration hospital.

“The number one benefit of ReWalk will be on users’ self-esteem,” Goffer told us. “ReWalk users will no longer be seen as disabled but as ‘just another guy on crutches.’ It can improve their quality of life, health, acceptance by society, and ability to return to work.”

During his visit to Israel in March 2013, U.S. President Barack Obama saw ReWalk first hand. It was demonstrated by Radi Kaiuf, Israeli Army veteran, and U.S. Army veteran Theresa Hannigan, both paraplegics. Sgt. Hannigan said at the time, “I’m so pleased to have the opportunity to demonstrate for President Obama this amazing technology that will benefit the lives of many men and women who have been impacted by spinal cord injuries.” Sgt. Hannigan trains with the ReWalk device at the Peters VA Medical Center in the Bronx, New York.



### 3. The Impact of Powerful Narratives

How do people understand, and find meaning in, complex events? How do they perceive such events, and draw conclusions from them that drive their behavior and views? Stories, or narratives, play a key role. Arasti et al.<sup>14</sup> showed that even among

primary schoolchildren, storytelling can be effective in creating motivation and understanding of entrepreneurship.

Stories are often-simplified versions of people and events, that distill complexity into clear understandable messages. Today's social media create an enormous ocean of 'noise' that bombard our senses hourly. So, shaping narratives has become increasingly important, as a tool commonly used to understand what is going on, and why, as a kind of filter.

Not all widely-told stories are true. Many are false – but still exert huge influence on actual events. Here are some examples.

[“Tech stocks can only go up in value”](#). [“Housing prices never fall”](#). [“Some firms are too big to fail”](#). All these false principles are driven by powerful narratives.

On August 9 1995 a high-tech company, Netscape, did an IPO (initial public offering) of its shares. The result was staggering: The company, whose premium product was the Navigator web browser, offered to all for free, saw its stock initially offered at \$14, then doubled to \$28 before trading began, then in hours shoot up to \$75 per share on the first day of trading, a near-record at the time for any stock's opener. The story of how some made huge profit within hours went viral. And it helped drive the high-tech bubble, that inevitably burst in 2000/2001, based on the false narrative that profit and even revenue are not relevant conditions for astronomical rises in stock prices.

The dot-com bubble was a period of enormous speculation in the United States and elsewhere, from 1994 to 2000. The Nasdaq high-tech stock index peaked on March 10, 2000, and ultimately lost 75% of its value, before recovering in October 2004. Many companies, especially on-line ones, failed and closed.

The dot-com crash was especially damaging for Israel, where a high-tech boom in the 1990's drove the majority of its economic growth. What caused the crisis? Greed? Incompetent regulation? Mismanagement? Bitter debates broke out. Zilber<sup>15</sup> used content analysis, and recordings made at a high-tech conference. Several competing stories emerged.

First, among high-tech industry members – “a story of a community united under crisis, and yet with optimism.” Technology-driven businesses have ups and downs, it's natural, we'll get through this.

Second, a counter-story, attaching blame. “The Bubble grew because of over-investments in shaky start-ups.” In a word, greed. The icon became pet-food dot-com companies. They used the Internet, but showed no technological innovation or value creation at all. VC's, in this story, were villains. By financing undeserving companies, they punished good hard-working legitimate entrepreneurs and start-ups.

Third, “incompetent geeks”. Entrepreneurs offered solutions without even defining the problem or verifying a real need. The point of having a business is making money, a VC partner said. During the last several years, some of us [i.e. startup entrepreneurs] forgot that. (Recall that Netscape and its legendary viral IPO gave away its browser software for free).

Zilber emphasizes that stories are part of oral discourse, in large part, and can be understood mainly by conversation and by listening to, and analyzing, conversations. Her research also reveals that often, perhaps always, there are competing stories, and we pick and choose which ones to believe and disseminate based on our interests, background and the side of the fence we happen to be on.

Similar stories led to the 2007/8 global financial collapse, driven by sub-prime mortgages, and to the bankruptcy of Lehman Brothers, a financial firm founded in Montgomery, Alabama, US, in 1859, collapsed on Sept. 15, 2008. Typical stories recounted how great wealth, at low risk, is compiled, and even highly sophisticated individuals are driven by them, or, at times, cynically employ them for their own ends. For example, stories about credit default swaps (CDS). Many highly-experienced investors and companies invested in them -- a purposely misleading label designed to circumvent regulators, comprising a financial swap agreement that the seller will compensate the buyer in the event of a debt default. When massive debt defaults occurred, financial collapse resulted on the part of CDS holders.

#### **4. What Stories Are Told About Startups?**

A metaphor equates two things -- one, that is often a somewhat abstract idea or concept, and a second, that is concrete and familiar. This is done, not because they are the same, but to help comprehension and understanding. For example, we say, someone who hesitates before engaging in a somewhat risky action, gets “cold feet”. Or, when we discard a strong idea because of a relatively minor flaw, we “throw out the baby with the bathwater”.

Stories about startups use metaphors. Lundmark et al.<sup>16</sup> identify eight different metaphors regarding entrepreneurship: “parenthood” (conceiving, nurturing, protecting, loving, grieving for a startup), “Darwinian” (survival of the fittest), “method” (improvise, make-do, tinker, bricoleur), “mindset” (calculated risk-taking), “networking” (connecting people and resources, building ties), “conduit of knowledge” (absorbing, recombining, transmitting, transferring knowledge, from theory to practice); “exploration” (venturing into the unknown, pioneering), and “politics” (aligning competing interests, building trust, handling conflict). Nearly all startup stories contain elements of these eight metaphors.

#### **5. How Can Stories Be Widely Spread?**

In an honors thesis at U. of Texas (Austin), De Beurs<sup>17</sup> studied oral storytelling. He collected 20 stories of the world’s most outstanding social entrepreneurs, through interviews, and published them on a popular podcast, Groundbreakers Podcast. The goal was to “preserve the authentic voices of the social entrepreneurs”.

The author suggests that the podcast has “strong potential ...to be deployed in educational settings to train aspiring entrepreneurs”. There is a very large number of similar podcasts, including Masters of Scale, Business Wars, How I Built This, Inside Intercom, She Did It Her Way (female entrepreneurs), Mixergy, Rocketship, Traction, Startup Podcast, Reword by Basecamp, Equity, Entrepreneur on Fire, Women Who Startup Radio, Product People, Re/code Decode with Kara Swisher – and the list grows daily.

Gehman et al.<sup>18</sup> make the important distinction between “making culture” (i.e. a culture of entrepreneurship) and “deploying culture” (distributing and disseminating the core values of startup entrepreneurship). Clearly, the *dissemination* of powerful narratives is as important as the creation of such narratives.

Laine<sup>19</sup> describes the entrepreneur as the “mythical hero of the capitalist West”. An early example is the juvenile novels of the 19<sup>th</sup> C. American author Horatio Alger (1832-1899). His books recount how poor boys from humble backgrounds rise to security and comfort through enterprise, hard work, honesty and determination – “rags to riches”. Alger’s books are known to have had a powerful formative impact in inspiring the spirit of business enterprise during this century.

## 6. Do Stories Motivate?

Is there any evidence that stories do motivate people to launch startups? If so – what *kind* of stories have the most impact?

Liu et al.<sup>20</sup> ran two experimental studies on 150 students enrolled in entrepreneurial education. They studied whether success stories, or failure stories, influence entrepreneurial intentions. Their conclusion, perhaps an obvious one, is that “successful role model stories have a greater impact”. But less obviously -- “idol stories” (e.g. Steve Jobs) rather than “peer stories” are more inclined to arouse individuals’ entrepreneurial intentions... and “individuals with low entrepreneurial self-efficacy are less affected by the storytelling process”.

The latter conclusion is important. Building individuals’ self-efficacy, defined by social psychologist Albert Bandura as “how well one can execute courses of action in prospective situations”, is an important precondition for entrepreneurship. Clearly, however well educated an engineering or science graduate may be, if they do not feel competent to tackle the daunting task of launching and growing a startup, they will choose not to do so. Fellnhofner<sup>21</sup> studied 426 individuals, primarily from Austria, Finland, and Greece, and showed that “role models increase learners’ entrepreneurial perceived behaviour control by increasing their self-efficacy”. Perhaps narratives about role-model entrepreneurs (especially truthful, realistic ones) help students build confidence in their own abilities

Henry et al.<sup>22</sup> studied the high level of entrepreneurship among the Maori (Polynesian indigenous natives of New Zealand) in the film industry. They emphasize the key role of two forms of capital: cultural (including stories) and social (the network of relationships among people in a given society), and stress the link between self-efficacy and storytelling. Among the Maori, entrepreneurship, especially in the film industry, is a path toward emancipating and preserving their cultural identity, as a people, and toward their identity as a cohesive community.

## 7. How Can Entrepreneurs Sharpen Their Narrative Skills?

Startup entrepreneurs not only are motivated and inspired by powerful stories, they can also *employ* them to raise capital and hire workers. As the Figure above shows, raising capital is a crucial link in the entrepreneurial value chain. When startup

entrepreneurs 'pitch' their ideas to investors – venture capitalists or angel investors -- they often stress their innovative technology. But is this the most effective approach?

Rhetoric is the art of persuasion and is one of the oldest of the arts of effective communication. Van Werven et al.<sup>23</sup> address the “rhetorical strategies” that entrepreneurs use to build plausibility and resonance. Many entrepreneurs study engineering or science, and their narratives or ‘pitches’ generally speak the technical language of their disciplines. Few entrepreneurs have studied rhetoric in depth. Rhetoric is about persuasion. It seeks to show how writers or speakers can best inform, persuade, or motivate particular audiences in specific situations. It is a crucial skill for entrepreneurs that is often neglected.

How can startup ‘pitches’ achieve plausibility and resonance? Business experts sometimes stress ‘market size’ as a key theme. Van Werven et al. stress, instead, the rhetorical device of the “enthymeme”, a kind of narrative about an innovation that assumes it has happened already and has changed the world. By helping people understand precisely how a startup will create value for many people, by speaking as *if* it had happened already, and recounting a plausible story of this sort, the listeners can better imagine and see the potential value of the innovation.

In Nilsson et al.<sup>24</sup>, the role of storytelling in raising capital by social entrepreneurs is analyzed. The context is that of Sweden. The authors identify a crucial dilemma in constructing a compelling narrative: The balance between “using compelling, emotional and engaging storytelling techniques” with “setting relevant cognitive and pragmatic expectations”. (p. 21). In other words: Inspire and excite the investor, but – not overly so, to destroy the sense of reality.

Karanian et al.<sup>25</sup> caution against “overly rehearsed pitches” and propose that entrepreneurs hone skills in “conversational storytelling” -- defined by asking questions of the audience (known to be a very good opening sentence, to engage the listeners), and by enlisting spontaneous, newly-tried approaches that build interest and high engagement. They discuss SBL – storytelling-based learning – as an effective approach to classroom teaching and “a way to come up with innovative solutions, often parallel to entrepreneurial ventures”. The authors find strong connections between design thinking and SBL.

Technology can strongly enhance storytelling. Carvalho et al.<sup>26</sup> explore the use of “digital storytelling” -- the use of digital media to create media-rich stories to tell, share and preserve. “Digital stories...weave images, music, narrative and voice together, thereby giving deep dimension and vivid color to characters, situations and insights.” In an entrepreneurship course in Portugal, students used both traditional methods to present a business idea (i.e. a business plan) and a digital version (a video). Half the students preferred the traditional business plan, fewer than a third chose the digital approach – perhaps, the authors note, because of lack of skill in using digital media. In contrast, 87% of the students responded that “visualization of their colleagues’ videos allowed them to acquire new knowledge”.

In working with student entrepreneurs, the first author has regularly asked teams to create short two-minute videos in addition to a conventional ‘pitch’ and business plan. These short videos have proved popular and effective.

## 8. Can Stories Enhance Leadership & Leaders' Vision?

An important aspect of startup entrepreneurship is the ability to motivate and inspire team-mates and workers, and to articulate a powerful sweeping vision that comprises a clear pragmatic roadmap to future success. Watts et al.<sup>27</sup> investigated “a novel approach to developing leader sensemaking skills using stories -- the extent to which reading and analyzing pragmatic and charismatic leadership stories...might support formation and communication of viable leader visions.” They conclude that “in terms of leadership development, ...people may stand to gain more from reading stories than cases”, when cases are almost universally used in management education today. Our own conclusion is that the best ‘case studies’ are simply powerful stories, written as story narratives rather than structured long and boring cases.

## 9. Conclusion

The vast research literature on startup entrepreneurship and the technological innovation that drives it is massively dominated by the discipline of Economics. This is understandable and inevitable.

But it is also clear that entrepreneurship is an art; hence a solely economic perspective will omit very important pieces of the startup puzzle.

One of those long-omitted pieces, is that of the narrative, or story – the foundation of the culture of entrepreneurship, in which bold individuals and teams marshal creative ideas and financial and human resources, to implement innovations that create huge value for millions.

Research, fairly recent in origin, shows that startup stories can be an important (perhaps even ‘missing’) link in the causal mechanism, in which engineering and science students become aware of entrepreneurship as a career path, ponder it, choose it, and then act on it, and use powerful stories to gather capital, human and financial.

Such stories of startups (not only successes) are widely known and recounted in Israel, almost daily. As Mexico builds its own unique entrepreneurship culture, powerful narratives of bold Mexican entrepreneurs in social media and in the press can play an important role.

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