

# Canadian Tech Tortoises

Is a lack of spending on marketing and sales delaying fundraising?



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# Spending on Critical Business Functions Shapes Business Growth

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"In the early stages of development, Canadian tech firms are likely to have a larger fraction of their workforce dedicated to research and development (R&D) than to M&S."

Our recent Impact Brief (*A Failure to Scale*, February 2017) revealed three critical issues that may be impacting the ability of Canadian businesses to grow rapidly:

1. Canadian companies wait longer before they start raising funds.
2. They raise funds less often.
3. They raise less money over time.

But why do Canadian businesses delay the fundraising process, which is essential to ensuring further growth? Anecdotal evidence suggests two things:

1. That many Canadian technology companies wait until their products are completed before raising and spending funds on crucial functions, including marketing and sales (M&S).
2. That Canadian venture capitalists (VCs) look for evidence of market traction before considering funding.

This is disconcerting because early expenditures on M&S may lead to faster market traction, more solid growth, and earlier VC funding. But practitioners in the Canadian technology scene have observed that many businesses underestimate the importance of M&S in their formative years.

The goal of this study was to determine whether Canadian technology startups do in fact delay funding M&S activities. To this end, we looked at job classifications of employees at over 900 private Canadian technology companies that had received external investments. We could argue that if Canadian firms postponed spending on M&S, we would expect to see no or few employees in M&S roles relative to total employment in the earliest stages of development, followed by a steadily increasing percentage of M&S-related employees as companies grow.

Job classifications were used as proxy to gain insight into how firms allocate money for various functions within the business. We discovered a striking pattern: while Canadian firms with the lowest recorded levels of external funding (our proxy for growth) have only 13% of their employees engaged in M&S activities, this percentage was significantly higher for businesses that had managed to raise funds. Firms with US\$50,000–US\$2 million of funding have 24% of their employees engaged in M&S. Thus in the early stages of development, Canadian tech firms are likely to have a larger fraction of their workforce dedicated to research and development (R&D) than to M&S.

A smaller contingent of M&S employees means that less time will be spent on vital startup activities such as market intelligence, product marketing, and business development. Companies that neglect M&S tend to approach the market only when a product is ready, therefore delaying their first revenue and growth.

But how do top technology companies in other countries approach the same issue?

Our analysis of more than 60 tech businesses in the US showed a different recipe for success: firms that scale quickly to US\$10 million in revenue spend, on average, 73% more on M&S than on R&D. Leading American firms have 40% of their employees dedicated to M&S.

This is significantly different in Canada where even the highest funded firms only have 31% of their employees in an M&S role. This creates a vicious cycle: fewer M&S employees means less M&S activity, which slows down all the processes needed for customer traction and entry into the market.

Such patterns add to the perception that Canadian companies struggle with commercialization and market adoption. They also led us to conclude that, relative to US businesses, there is a striking difference in philosophy about when to approach customers and markets and that perhaps our technology companies grow more slowly than the leading US companies because they do not spend enough on M&S.

# Marketing and Sales in Startups

Practitioners, investors, and advisors operating in Canada's startup ecosystems (including the author) have observed a consistent behaviour among Canadian tech companies: they wait until they have a product ready before growing other important business activities and embarking on large-scale commercialization efforts. In particular, we have seen that, relative to American firms, Canadian businesses spend less time and money on M&S in their early years. But since no studies were available to support the anecdotal evidence, we set out to find open sources of data to back these observations.

Before we begin to report on our findings, we must clarify what we mean by M&S. The assumption is that "marketing and sales" refers to advertising and sales calls. Although ads and sales calls constitute an important activity to firms later in their development, what firms need early on, even from the first conception of an idea, are funds for market research, product marketing and business development. These activities reflect a broader definition of M&S and help firms understand the sector they operate in, how the technology they are developing can fit into the market, and prepares the market for the eventual launch of the product. Spending on such early M&S activities will ensure that the product is aligned well with the market and customer needs, and that potential customers are poised to buy when the product is released, rather than learning about it afterward. As companies mature, spending on M&S typically shifts towards marketing communications and sales. But regardless of the nature of the activity, firms must recognize that they should spend money on M&S from the minute they start.

To understand the extent to which firms spend on M&S during various stages of their development, we looked at over 900 Canadian companies that had been identified by CB Insights as recipients of external funding. These funds are derived largely from venture capital firms and ranged from under US\$100,000 to US\$280 million in size. We then attempted to determine their spending patterns by analyzing employee composition based on LinkedIn data. LinkedIn shows the number of employees per firm and divides them also into various categories according to LinkedIn's interpretation of the job function.

There are two main issues with using these data sets. First, not all employees in a firm have LinkedIn profiles, which affects the validity of total employee counts. Second, the interpretation of the job function may also be inaccurate. For this reason, we ran tests to check the soundness of our assumptions and to determine the effect any inaccuracies may have on final results. While the LinkedIn data may not reflect the most current information for an individual firm, inaccuracies at firm level tend to average out over the population as a whole. In some cases, employee counts on LinkedIn are higher than employee claims by firms. These differences frequently result from the use of contractors who claim association with a firm on LinkedIn but who may not be counted as employees by the firm.

To focus our analysis on employment in M&S-related functions, we tracked the number of employees categorized by LinkedIn with jobs in:

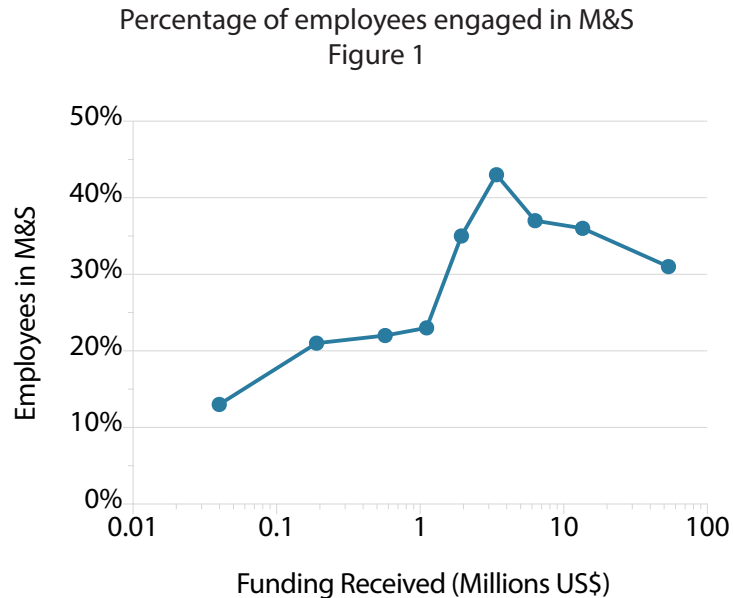
- Sales
- Business Development
- Marketing
- Media and Communications
- Product Management

Table 1 shows the data for 900 companies, which were divided into nine groups of 100 firms per group. The firms were ordered according to total funds received. Despite the limitations of LinkedIn data sets, the final numbers revealed a nearly direct relationship between the total funds a firm receives and the percentage of employees engaged in jobs that could be classified under the category of M&S. Firms in groups with lower funding numbers have significantly fewer employees engaged in M&S. The fraction of employees in M&S-related jobs increases in larger and better-funded firms. This trend is also further confirmed when percentages of the workforce in M&S-related jobs and total funding for all nine groups are shown on an X-Y plot (Figure 1).

Impact of Funding Levels on M&S Workforce

Table 1

Group No.	Total Funding (Group Average in US\$ Millions)	Percentage of Workforce in M&S-related Jobs (Group Average)
1	53.62	31%
2	13.59	36%
3	6.33	37%
4	3.41	43%
5	1.94	35%
6	1.11	23%
7	0.57	22%
8	0.19	21%
9	0.04	13%



Thus, what we have observed anecdotally while working with early- and late-stage technology companies is clearly proven in the employment data. But what are the real-world implications of the analysis?

The most significant issue is that whenever companies confine their operations to the narrow definition of M&S, they neglect all the benefits that M&S brings to business growth. A smaller fraction of employees in M&S means that less time will be spent on crucial startup activities such as market research, product marketing, and business development. Such companies have the mindset that they should approach the market, potential partners, and customers only when their products are ready, therefore deferring their growth and first revenue.

How can we apply this to a Canadian startup that is still developing its technology and product?

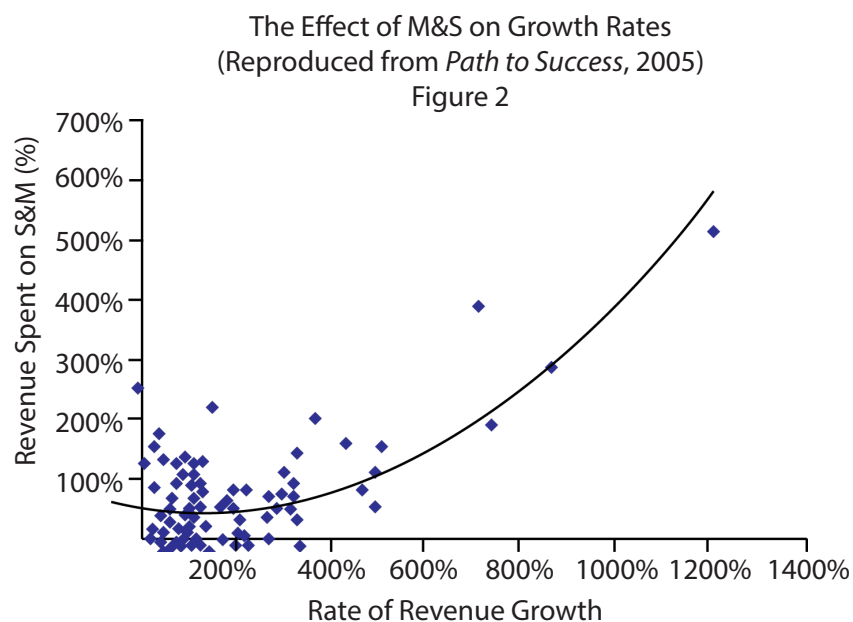
Calculations from LinkedIn showed that Canadian startups that received between US\$50,000 and US\$2 million in funding have, on average, 24% of their employees engaged in M&S. Given further requirements for additional employment in operations, general and administrative roles (estimated conservatively to be 40% of total employment), the net result in Canada is that approximately 36% of employees at this stage of development would be engaged in R&D. Thus, the number of employees engaged in R&D is approximately 50% more than the number engaged in M&S. This suggests that Canadian firms choose R&D over M&S in the startup phase.

But should Canadian firms spend less on M&S because they are in fact only in the early stages?

# What Generates a Fast Startup?

Finding the ideal spending formula for startups and emerging firms is extremely difficult, particularly because you need tremendous foresight and an understanding of all the significant changes a firm undergoes as it grows. To look at how expenditures change over time, we turned to a 2005 study carried out by the author (*Path to Success*, released by Q3 Research Inc.). This study examined 64 US software companies in the years from nil to US\$10 million in revenue to determine what made them successful. Although the data are over 10 years old, the ratios derived through the study still exist in the market today and are relevant to the current discussion.

The software industry has long considered revenue growth to be the driving factor in generating shareholder value. It follows, then, that driving growth levels up would be the prime strategic directive for any firm. Yet the question remains as to what actually drives business growth. An analysis of 64 software startups showed a clear correlation between the amounts of money firms spend on M&S as a fraction of their revenue and their rates of growth (Figure 2).



## Effect of Company Size on M&S versus R&D

Small, quickly growing firms often debate how they should best spend their operating dollars and how to balance M&S and R&D expenditures. The 2005 report examined, among others, the ratio of M&S to R&D expenditures. The median firm in the study of 64 software companies spends 1.88 times as much money on M&S as on R&D. The resulting number for this set of startups is interesting when compared with the median M&S : R&D expenditure for the entire software industry. In fact, for the industry as a whole, the median ratio is 1.65 times. Thus, while emerging US firms may be expected to spend more on R&D than M&S, because they must first develop a product that can be taken to the market, they actually favour expenditure on M&S in their formative years.



Table 2 shows the data from the 2005 study for all companies with revenue above US\$1 million. The first column shows the firm size (measured in revenue), and the next two columns show median and average ratios of M&S to R&D expenditures.

Effect of Size on M&S versus R&D  
(Reproduced from Path to Success, 2005)

Table 2

Firm Revenue (US\$ Millions)	Median M&S to R&D
1,959	1.64
4,014	1.55
6,071	1.87
8,655	1.86
11,799	2.08
19,403	2.13

### The Investor Perspective

Practitioners (including the author) have observed that in the US, venture capital firms invest money to help companies get market traction. Anecdotal evidence suggests that American investors are less risk-averse and willing to support an idea with potential, while Canadian investors typically look for customer traction before investing.

For example, the Y Combinator in Silicon Valley is one of the world's most recognized providers of seed funding for early-stage companies ([www.ycombinator.com](http://www.ycombinator.com)). Certainly, Y Combinator's investing style seems to prove that money gets traction. Y Combinator invests US\$120,000 in a new venture based on an idea, often before incorporation, product development, or evidence of traction. They state that the "most important thing [they] do is work with startups on their ideas."

Let us do a thought experiment. Imagine that the common perception of US investors is incorrect, and that there are substantial numbers who will only invest if they see market traction. With that in mind, let us return to the behaviour of US firms.

The data show that successful US businesses spend money to hire employees in M&S roles earlier than typical Canadian companies. Therefore, firms spending money on M&S right from inception are expected to get market traction more quickly than those that wait until a product is complete. Market traction can be gained through a wide range of activities, such as market research and early customer engagement, and this can be underway long before a product is ready. In fact, a large book of orders can be developed before product launch through early M&S efforts. Certainly, this has the potential to generate long-term benefits, including accelerating growth and fundraising.

Therefore, even if US investors look for actual product delivery to prove traction, the firms that spend money on M&S before releasing their products will create product awareness and bring potential customers to the table early on ensuring faster market uptake and growth.

### The Implications for Canadian Businesses and Policy Makers

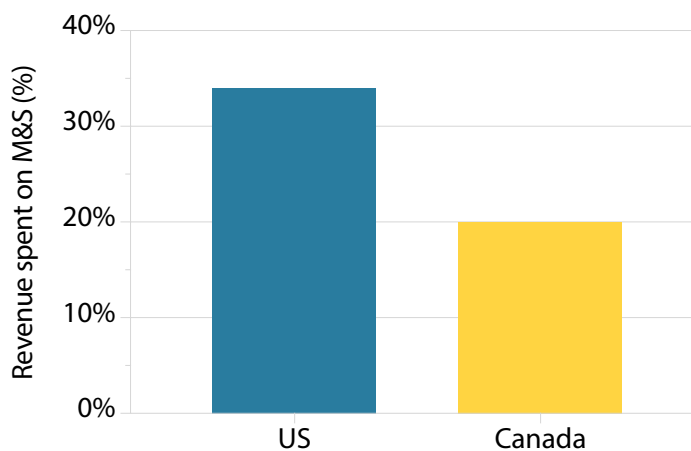
The lesson for Canadian companies and policy makers is that tech businesses must spend significantly more on M&S employees and other types of M&S expenditures if they wish to reach markets earlier, obtain funding faster, and catch up to their competitors. Canadian firms must break the behavioural pattern that eventually lead to smaller and slowly growing companies. Regardless of their state of development, firms are bound to remain small if they neglect M&S.

## Marketing and Sales in Larger Firms

Our report on M&S trends in larger firms (*A Nation of Soft Sellers*, January 2017) showed that public Canadian software companies spend considerably less on M&S than their American counterparts (Figure 3). These public companies are larger and more established than the private firms that are the focus of the current study. (They ranged in size from US\$1 million to US\$250 million in revenue.)

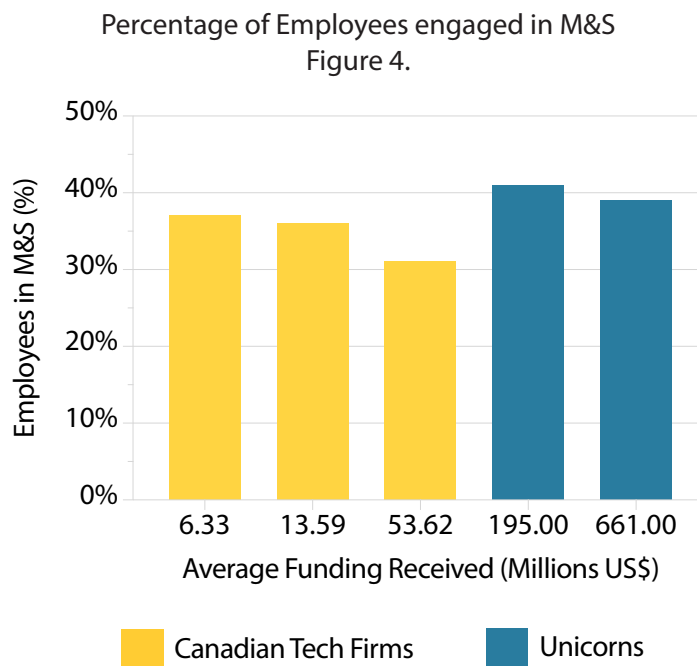
Interestingly, the large US companies with over US\$250 million in revenue spend about 20% of their income on M&S, which is closer to how much their smaller Canadian competitors allocate to the same function. This reflects the fact that over time, the requirement to fuel growth through spending on M&S declines as the market matures and a company gains a dominant position in its niche.

Percentage of Revenue Spent on M&S  
(Reproduced from *A Nation of Soft Sellers*, January 2017)  
Figure 3.



We were surprised, however, to see in the current study that the percentage of employees engaged in M&S begins to plateau or decline significantly earlier in Canada. Figure 1 shows that the fraction of M&S employees declines once firms have raised approximately US\$3.4 million. This decline would be expected if firms were larger but not at this size. The data suggest that companies may begin to prioritize other functions such as R&D. In fact, you can compare employee composition at leading Canadian tech companies and American Unicorns. Unicorns are companies with valuations at or over US\$1 billion, and include some of the world's most highly recognized firms such as SpaceX and Dropbox.

Figure 4 shows the employee composition of the 300 highest funded Canadian tech companies (top groups from Table 1) and 87 American Unicorns. While the Unicorns have an average of 40% of their employees engaged in M&S activities, the largest Canadian firms only have 31% of their employees engaged in M&S. Note that some American Unicorns like Uber and AirBnB were excluded from these data because of the high numbers of individuals affiliated with the companies but who are not legally defined as employees (e.g., Uber drivers and AirBnB hosts). It is impossible to disaggregate such numbers using LinkedIn data.



# Conclusions

Canada's startup ecosystem is grappling with a scaling challenge of how to take promising young companies and turn them into globally competitive players, but our Impact Brief suggests that one piece of that puzzle is linked to marketing and sales. The current study provides clear evidence of a trend observed "on the ground" by entrepreneurship practitioners over the last few decades, which indicates that Canadian businesses tend to wait until product development is finished before engaging customers, conducting market intelligence, and gaining market traction. But such a cautious approach effectively compromises their ability to grow quickly and speaks to a fundamental philosophical difference between Canadian companies and firms operating in other jurisdictions. We have shown that Canada's technology companies may be growing more slowly because they do not spend enough on critical activities such as marketing and sales that shape business growth.

The key lesson is that we cannot neglect M&S at the expense of other business functions: the effect of fewer employees in M&S means less spending on M&S activities, slower growth, and ultimately fewer fundraising opportunities from investors who perceive slow growth as a sign of weakness. All of these patterns inhibit Canada's ability to create world-class companies.

# Methodology

Our study looked at employment patterns of over 900 private Canadian companies that had been identified by CB Insights as having received funding from venture capitalists, angels and, in some cases, government grants. Using that list as a base, we used LinkedIn data sets to record the employment composition of the firms selected for the study, and particularly the number of individuals employed in marketing- and sales-related roles:

- Sales
- Business Development
- Marketing
- Media and Communications
- Product Management

In order to look at the data more granularly, we divided the companies into groups of 100 according to amount of funding received. Calculations shown in this study were based on simple rather than weighted averages.

In addition, the study also looked at the marketing and sales employment composition of 87 American Unicorns.

To enhance transparency, we limited our data collection to public sources. We recognize that the data may therefore be incomplete or inaccurate.

This study was not intended to be academically rigorous; nor was it intended to be all encompassing about the topic of marketing employment in the tech industry. It was designed only to add to the conversation on innovation and highlight areas worthy of future research by looking at data available from publicly available sources. We plan to continue exploring and developing research on the subject in future Impact Briefs.

# About the Impact Centre

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## Science to Society

We generate impact through industry projects and partnerships, entrepreneurial companies, training and research.

We bridge the gap between the university and industry to accelerate the development of new or improved products and services based on physical technologies. We work with graduate students and researchers to help them commercialize their discoveries. We provide undergraduate education and training for students at all levels to ease their transition into future careers.

The Impact Centre conducts research on all aspects of innovation, from ideation and commercialization to government policy and broader themes such as the connection between science and international development. We study how companies of all sizes navigate the complex path between a discovery and its market and how their collective innovations add up to create a larger socioeconomic impact.

Our objective is to understand how we can improve our ability to create world-class technology companies, how governments, companies, and academia can identify and adopt best practices in technology commercialization.

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## Impact Briefs

Charles Plant  
Author  
Senior Fellow  
cplant@imc.utoronto.ca  
416-458-4850  
@cplant

Contributors:  
James Li  
Leo Mui  
Scott McAuley  
Taylor Wilkes

Emina Veletanlic  
Editor  
Manager, Strategic Initiatives  
eveletanlic@imc.utoronto.ca  
416-978-1457

---

## Research Supporters



Charles Plant  
Author  
Senior Fellow  
cplant@imc.utoronto.ca  
416-458-4850  
@cplant

Emina Veletanlic  
Editor  
Manager, Strategic Initiatives  
eveletanlic@imc.utoronto.ca  
416-978-1457

Contributors:  
James Li  
Leo Mui  
Scott McAuley  
Taylor Wilkes



UNIVERSITY OF  
**TORONTO**

Impact Centre  
Suite 411 - 112 College Street  
Toronto, Ontario  
Canada M5G 1L6

Tel: 416-978-3875  
info@imc.utoronto.ca  
www.impactcentre.ca