

INFORMATION ASYMMETRY IN ENTREPRENEURSHIP

Information asymmetry deals with the study of decisions in transactions where one party has more or better information than the other. Information asymmetry presents a paradox fundamental to entrepreneurship. When individuals perceive opportunity that others do not, this information advantage can be the basis for the formation of new ventures and long-term competitive advantage. At the same time, capitalizing on entrepreneurial opportunity requires accessing human and financial capital from stakeholders reluctant to commit to the venture because they do not perceive the opportunity as the entrepreneur. In this chapter, we discuss in detail the fundamental paradox that information asymmetry plays in entrepreneurial markets, and clarify how successful entrepreneurs navigate this paradox.

A Starting Point for Understanding Information Asymmetry

A starting point for understanding why information asymmetry is consequential is to consider the alternative – that individuals have complete information and the capability to perfectly process it. Simon (1997) has labeled such individuals as being *objectively rational*, and contrasted them with *subjectively rational* individuals who maximize utility based on their actual knowledge of the decision. This distinction highlights Simon's disregard for the common instrumental assumption of objective rationality used by economists to generate tractable closed-form solutions. March and Simon (1958) have suggested decision-makers are bounded by even more than the information they possess, but also by the cognitive limits of their minds and the finite time to make decisions. Acknowledgement that agents might be either subjectively or boundedly rational opens

up consideration that different parties in the decision may have different knowledge and information sets about the ideas and their quality.

Why Information Asymmetry is Fundamental to Entrepreneurial Opportunity

Nearly all seminal works in entrepreneurship point to the role of information advantage for generating entrepreneurial opportunity. Knight (1921) reasoned that when uncertainty is present the primary problem an entrepreneur faces is deciding what to do and how to do it. How they conceive of the solution to the problem will dictate their estimates for the future, whether they exercise entrepreneurial opportunities, and their eventual profitability. In his characterization, imperfections in information and resources require the entrepreneur to possess particular characteristics such as judgment and foresight to capitalize on market opportunities. Schumpeter (1942) implies that entrepreneurs act on unique information to creatively destroy old ways of competing by instituting new technologies, new sources of supply, or new types of organizations. The works of Hayek (1952) and Kirzner (1973) also put the criticality of information at the center of entrepreneurship and market dynamics. Entrepreneurs are those individuals who discover opportunities missed by others and thereby move markets toward equilibrium. Discovery is driven by entrepreneurial alertness – an attitude of receptiveness to available (but hitherto overlooked) opportunities. All these seminal works emphasize, either implicitly or explicitly, that information advantages drive entrepreneurial opportunity, and may emanate from unique capabilities to process or conceive of ideas, or simply being more aware of opportunities.

What challenges does information asymmetry create?

While access to superior information provides the basis for entrepreneurial opportunity, it may also constrain the ability to attract human and financial capital from outsiders without privilege to the information. This is because information asymmetry creates an imbalance of power in transactions that can sometimes cause the transactions to go awry. Entrepreneurs may be reluctant to share the information with potential resource providers if it constitutes the entire basis of their competitive advantage (Shane and Cable, 2002). Sharing it may undermine their ability to capitalize on the opportunity. Even if entrepreneurs were willing to share their concept, potential providers of capital may not fully appreciate the concept's upside potential or the entrepreneur's ability to capture it (Amit et al., 1990; Barry, 1994; Chan et al., 1990; Gompers, 1995). Moreover, the entrepreneur may not be able to effectively articulate the nature of the competitive advantage they seek. This problem may be particularly relevant for entrepreneurial ventures involving high R&D investments, because intangible assets most profoundly underlie competitive advantages in these ventures. For these reasons, information asymmetry between the entrepreneur and potential capital providers may negatively affect entrepreneurs' ability to obtain the necessary resources to effectively undertake the venture (Evans and Leighton, 1989; Casson, 1982).

Asymmetric information between entrepreneurs and potential capital providers exposes transactions to the problem of adverse selection and moral hazard. In general, adverse selection occurs when a potential principal cannot check whether the agent has accurately conveyed information (Arrow, 1985). Adverse selection refers to pre-contractual opportunism, and is the basis of Nobel laureate George Akerlof's (1970) seminal work. He formalized how information imperfections hinder the ability to filter the good opportunities from the bad, creating a "market for lemons," because buyers are

only willing to purchase at the average value for similar opportunities, and the only entrepreneurs willing to sell at average value are those whose ventures are below the average. His arguments suggest that market failure will occur because high-quality entrepreneurs will be driven from the market. Folta and Janney (2004: 225) explain the problem of adverse selection for a technology entrepreneur seeking capital from investors: “Principals may not have accurate information about the technology firm’s growth opportunities, R&D capabilities, or results from recent clinical trials. Much of the most important information in such firms is embodied in individuals’ minds, and so it is tacit. If investors cannot somehow overcome their informational disadvantage, they will tend to evaluate all firms as ‘average.’ High-quality firms have an incentive to withdraw from the market rather than accept terms that are less favorable than they deserve. Investors are faced with adverse consequences because the only firms willing to accept their terms are low-quality firms, who do so enthusiastically because they receive more favorable terms than they deserve.”

In general, moral hazard occurs when a potential principal is unable tell what action the agent has taken (Arrow, 1985). Moral hazard refers to post-contractual opportunism. Folta and Janney (2004: 225) emphasize that in the case of entrepreneurial ventures, “investors may not be able to discern how hard the firm’s employees have worked or what they have done. Clearly, agents and principals may have different objectives. For example, the investors may want to maximize profits, while managers may seek to minimize chances that they will lose their jobs, take fewer risks than investors might prefer, or minimize effort. A biotechnology company founder may invest in research that brings private benefits, such as recognition in the scientific community, but provides less return for investors than other projects. If investors cannot discern how hard or prudent firm managers have worked, there are incentives for managers to shirk

without much risk of punishment. The prospect of hidden action within technology firms decreases the incentive to invest in such firms.”

While the challenges entrepreneurs face due to adverse selection and moral hazard have been elaborated most frequently for access to financial capital, it should be expected that entrepreneurs face similar challenges when accessing other resources, such as trying to hire quality employees or attract reputable partners. Because adverse selection and moral hazard lead to undesirable outcomes, firms unable to manage the negative repercussions associated with information asymmetry will find it hard to prosper, and even survive.

How entrepreneurial markets reconcile the information asymmetry issue?

Despite the potential for adverse selection to derail entrepreneurial markets, there is plenty of evidence to suggest that these obstacles can be overcome. The literature points to three critical ways this might occur. First, institutions have developed to cope with the potential for adverse selection, such as venture capitalists and professional hiring agencies. For example, venture capitalists are intermediaries between entrepreneurs and providers of capital, who reduce information asymmetry through intense due diligence facilitated by the specialized expertise in certain technology sectors and extensive professional networks. This institution is frequently lauded as providing the United States a national advantage for spurring entrepreneurship because its scale enables specialization. Entrepreneurs able to attain capital from venture capitalists send a strong signal to the market that a certified investor recognizes value in the firm that others are not able to recognize. The tendency for firms to experience positive abnormal returns simultaneous to venture capital investments is supportive of the contention that venture capitalists are effective at reducing information asymmetry (Hertzel and Smith, 1993;

Folta and Janney, 2004). It has also been noted that venture capital investments facilitate the ability to attain subsequent capital or partnership agreements (Folta and Janney, 2004). Other institutions that have developed to overcome problems of information asymmetry include government-funded programs such as SBIR and SBIC in the United States. The effectiveness of these science-based programs is facilitated by a detailed review process involving academic and industry experts. Sweden, Germany and United Kingdom are developing similar venture funding programs. Entrepreneurs funded by such programs are able to garner credibility and because of this positive signal may be more effective at obtaining private capital (Hall, 2005; Klette, Moen and Griliches, 2000). Lerner (1999) empirically analyzed 1435 SBIR awardees with a matched sample of firms that did not receive awards, and showed that firms receiving SBIR grants grow significantly faster than the others.

A second way in which entrepreneurial markets overcome adverse selection is by managing moral hazard by implementing controls in financial contracts. Three control mechanisms are especially noteworthy: 1) the allocation of contractual rights, 2) the staging of capital, and 3) risk shifting (Gompers and Lerner, 2000). Contractual rights designed to safeguard stakeholder from moral hazard include those around incentives, liquidation preferences, decision-making, and vesting. For example, venture capitalists tend to offer compensation to entrepreneurs based on convertible securities and covenants to delay cash payments until the performance outcome of the venture is revealed (Gompers, 1995); require convertible preferred stock with dividend and liquidation preferences; require a seat on the venture board; and require that entrepreneurs are vested to insure against their sudden departure. The decision by venture capitalists and other private investors to stage capital infusions rather than commit wholeheartedly to the venture reduces exposure to moral hazard. Risk shifting mechanisms like performance

linked forfeiture and anti-dilution provisions allow the venture capitalist to increase their ownership interest at the expense of the entrepreneurs' stake, thereby protecting the venture capitalists' investments if the venture underperforms (Hoffman and Blakey, 1987).

A third way in which entrepreneurs overcome adverse selection is through social networks. Information transfer through social ties and social obligation influence investors' decisions on venture funding (Venkataraman, 1997). Social ties create expectations of trust and reciprocity into the economic exchange that promotes the transfer of private information. Granovetter (1985) reasoned that social relationships are governed by norms of fairness and equity and by embedding a transaction in an ongoing social tie creates a sense of mutual gain. Direct social ties provide a fast mechanism for obtaining information about the entrepreneurs' quality and reduce investors' apprehension about entrepreneurs' tendency to behave opportunistically. Empirical analysis conducted by Shane and Cable (2002) shows that social ties influence seed-stage finance decisions. Stuart et al. (1999) analyzed the influence of social ties on new venture performance and showed young firms with social ties to high-status strategic alliance partners perform better than other new firms, presumably because their social ties provide them with attributions of quality when the information on actual quality is unknown.

Conclusion

Information asymmetry has been researched extensively in understanding the behavior of entrepreneurs and has a profound implication in creating conditions for an entrepreneurial culture. In this chapter, we highlighted the paradox information asymmetry presents in the entrepreneurial environment. The existence of asymmetric information is critical for the resulting level of entrepreneurial activity in the economy. On one hand information

asymmetry creates entrepreneurial opportunities and provides advantage to individual to seek rents due to difference in information. However, the other facet of information asymmetry poses challenges for the entrepreneur to gather resources for implementing the opportunity. We are beginning to understand how entrepreneurs are able to overcome these challenges, but much remains to be known. For example, more research is needed to diagnose the relative effectiveness of the different solutions in signaling unrecognized value. Also, our understanding of the effective design of government programs to reduce information asymmetry is vastly understudied.

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