Minor data science & entrepreneurship

Offered by: Tilburg University
Language: English
Primarily interesting for: Major Data Science
Prerequisites: 
Contact person: dr. M.A. Westenberg

What is this package about?
The minor ‘Data Science and Entrepreneurship’ is a close collaboration between the Business Law Department of Tilburg Law School and the Jheronimus Academy of Data Science (JADS) in Den Bosch (see https://www.jads.nl/). Both parties are closely involved in this minor program. The courses ‘Independent and Corporate Entrepreneurship’ and ‘Data Science and Entrepreneurship in Action’ will (partly) take place at JADS, where students also can meet with the entrepreneurial data scientists that are present at the JADS campus. The other courses will (for a large part) take place at Tilburg University.

During the minor courses, students are introduced to all aspects of independent and corporate entrepreneurship that are especially relevant to data scientists, from entrepreneurial finance to data protection risks. The minor is definitely relevant for students who are considering starting their own company, but also for students who rather want to work for a (larger) corporation as it offers an all-round business minor program.

Note 1: to participate in this minor, you need to register as an individual minor student at Tilburg University, see https://www.tilburguniversity.edu/students/administration/registration/first-minors/
Note 2: this minor is 30 ects.

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Admission requirements:
To follow the course ‘Risk Management and Data Protection’, students need to have followed the course ‘Firm’s Lifecycle’ or a related business course. Students can contact the course coordinator to see whether they are eligible to take the course in case they did not follow ‘Firm’s Lifecycle’.
To follow the course ‘Data Science and Entrepreneurship in Action’, students need to have followed at least three of the five other minor courses. In case they still want to take this course, but do not meet this requirement, they can send their motivation to join the course to the course coordinator.

Course descriptions

**Firm’s lifecycle**
This course is intended to provide students with a basic understanding of entrepreneurship, businesses and business law. The course follows the life cycle of the company from business idea to a start-up and from a start-up to an IPO and discusses the related business and business law aspects in each stage. In the first (introduction) part of the course, an introduction to entrepreneurship is provided. In the second part of the course, we continue with launching the venture and its organization. Topics that are covered in this part of the course are the economics of organizations, the differences between several business forms including partnerships and corporations, the internal organization of corporations and corporate governance. Part three of the course focuses on exit strategies, thereby completing the firm’s lifecycle. Topics that are covered include M&A and the liquidation of companies. Since business law plays a large role in the internal organization of firms in each stage, we focus on the legal requirements for setting up and maintaining different types of companies in this course in the Netherlands but also from a comparative perspective. In this course a small introduction to law is offered as well for the purpose of understanding business law concepts.

**Business contracting**
This course is intended to provide students with basic knowledge and understanding of a variety of business contracts. The course starts with an introduction to contract law and to business contracting, and it evolves to address the steps to enter into a contractual relationship and the different parts of the contract. Then, students are introduced in the world of contract negotiation and drafting and are required to negotiate and draft a contract. Next, different contract clauses in contracts at the start of a venture (COC, drag along, tag along, divorce clauses, etc.), and during the life span of a venture (force majeure, EAC, severability, etc.) are assessed and discussed. Lastly, students will gain familiarity with contract clauses in the venture in transaction (including the M&A process, with eg. Earn-out, MAC, non-compete).

**Finance and entrepreneurship**
This course is intended to provide students with a basic understanding of entrepreneurial finance, exploring the intersection of the fields of (corporate) finance and (corporate) entrepreneurship. Important topics in the course are for example entrepreneurial financial contracting and term sheets, but also corporate finance and business valuation. The course is divided into two blocks. The aim of block I is to familiarize students with the essential knowledge in finance. Students will be equipped with the key concepts of finance, among which the time value for money, the capital structure of a corporation and the related problems, and corporate valuation. Differing considerably from corporate finance in a number of key assumptions, entrepreneurial finance will be the focus of block II. Students
will learn about start-up financing and crowdfunding. The course ends with a termsheet analysis, both from the perspective of a venture capitalist and the entrepreneur.
Independent and corporate entrepreneurship

The rise of technologies collecting, storing, analyzing and visualizing large amounts of data potentially brings unprecedented opportunities for entrepreneurship. Theories of entrepreneurship can be roughly divided into those that take entrepreneurship as an outcome or phenomenon (e.g., self-employment), and those that perceive entrepreneurship as a way of acting or thinking (e.g., innovation). Joseph Schumpeter’s seminal work on the economics of innovation clearly fits into the latter view. According to him, the entrepreneur’s function is to create new combinations from existing resources. Schumpeter is mostly known for his two models of innovation. The Schumpeter Mark I model emphasizes the role of independent entrepreneurs, who create new businesses in order to exploit opportunities for innovation. These new entrants herewith challenge the incumbent firms. In a Schumpeter Mark II regime innovations stem from entrepreneurial activities by (groups of) employees in incumbent firms. This distinction is closely related to that of independent entrepreneurship versus corporate entrepreneurship. Widely accepted definitions also acknowledge that entrepreneurship takes place inside and outside the boundaries of existing organizations.

In this course, we also do not limit entrepreneurship to the creation of new independent ventures. In fact, entrepreneurship is increasingly recognized as essential for the long-term viability of established organizations. In times of ongoing globalization and technological change, firms must act more entrepreneurial in order to obtain and maintain a sustainable competitive advantage. We take Schumpeter’s early work as a starting point, after which we extensively discuss the antecedents and consequences of both forms of entrepreneurship. Although independent and corporate entrepreneurs have quite some things in common, they face an entirely different context. Case studies allow you to explore and evaluate the practices and challenges involved when people engage in entrepreneurial activities. The course is characterized by a multidisciplinary approach, since it combines insights from economics, management, psychology and sociology.

Risk management and data protection

Businesses face many uncertainties and risks, especially data science companies that usually have to manage and protect large amounts of data. It is of utmost importance to think about what could go wrong with your business and how to mitigate risks in an efficient way. This course discusses risk management from the perspective of data science companies, focusing on the internal control and responsibilities of companies and the role different (corporate) actors play. It starts with a clear identification of the different sources of risk data science firms are exposed to. An important source stems from the nature of data science firms; therefore this course provides an introduction to privacy and data protection issues and regulations data science firms face. Afterwards, students will be introduced to a case to establish a risk management system themselves.

Data science and entrepreneurship in action

The ongoing technological change and the plethora of data create numerous opportunities waiting to be exploited by (potential) entrepreneurs. Although some have posed critical questions about the phenomenon of big data, and some have highlighted the computational and statistical challenges that come with analyzing big data, scholars from different research disciplines have also started exploring its huge potential. Fairly recently, data science also
found its way into entrepreneurship research. For example, one study provides a taxonomy of data-driven business models that are typically used by start-up firms.

In the context of this course we focus on digital technologies and (big) data providing opportunities for entrepreneurs to create new value. In fact, you are the ones that are challenged to act upon the opportunities that the data revolution and fast-paced technological development bring about. As such, this course aims to provide you with the ability to initiate and further develop data- and/or technology-driven business ideas. It will take you through the first two and most uncertain phases of the developmental process of a new (corporate) venture, i.e. the ideation and validation phase. We hereby draw upon principles of the lean start-up method. Obviously, the course is multidisciplinary in nature, as it combines insights from (at least) the data science and entrepreneurship fields.