



A Job Yet-To-Be-Done: Reinventing How Universities Define Student Needs

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Abstract. Entrepreneurial universities are struggling to attract students in an increasingly global and competitive market for education services, which pressures higher education institutions to better understand and articulate customer needs. Improving practice requires the use of alternative tools. The paper provides an overview of using the Outcome Driven Innovation® (ODI®) process in the West University of Timisoara to better define jobs-to-be-done for a customer-oriented entrepreneurial education strategy across the campus. The article presents the steps taken and conclusions, as well as an assessment of ODI® as a solution for universities in general.

Keywords: entrepreneurial education, entrepreneurial university, educational marketing, market research, customer jobs.

1. Introduction

Scholarship and expert research have long pointed out that the emergence of the entrepreneurial university has been driven by two trends. The first is a normative perspective taking into consideration the need to update the role and relevance of the university in a more dynamic world[1], where education and employment have become increasing out of sync. However, it is the second trend that has created true momentum for change: practical necessity.

Changes brought about by globalization, massification of higher education, technology, demographics (Allison & Javorka, 2014; OECD, 2014; Wilson, 2008) as well as resource stringency due to increasing competition and public budget cuts and performance-based allocation (Allison & Javorka, 2014) have forced HE institutions to reassess their business models. With lower, more competitive access to resources and increased uncertainty, taking the entrepreneurial path has been a solution for an increasing number of institutions (Gibb, 2012; Mets, 2010). At the same time, industry demand for technological innovation coupled with decreasing public investment in research has pushed universities to become more entrepreneurial in managing their research activity (Von Hippel, 1988), especially in key areas such as biotechnology (Zucker & Darby & Brewer, 1998) and nanotechnology (Darby & Zucker, 2006).

The mixed results which this strategy has provided across the world has inspired growth in scholarly interest. A comprehensive analysis of the level of depth and maturity of the topic, published in 2007, indicated a growing concern

for the topic between 1981 and 2005. The paper also mapped 4 core areas of debate throughout the 173 analyzed articles (Rothaermel & Agung & Jiang, 2007):

a) the entrepreneurial research university

This area focuses on identifying the “organizational designs that inhibit or enhance the commercialization of university inventions”, looking at incentive systems, university status, location, culture, intermediary agents, focus, experience, and defined role and identity as internal drivers (Rothaermel & Agung & Jiang, 2007), coupled with external factors: policy (Etzkowitz, 2003; Mowery & Nelson & Sampat & Ziedonis, 2001; Jacob et al., 2003), interaction with industry, as well as access to industry actors (Gulbrandsen & Smeby, 2005) and overall regional conditions (Friedman & Silberman, 2003).

b) productivity of technology transfer offices

Technology transfer performance of dedicated offices has become a favorite topic for researchers, as quantitative data on specific performance indicators is readily available from established structures. The focus of research in this respect has been on how does organizational structure of TTOs actually influence their performance through access to resources, relationships, autonomy, incentives and commercialization strategy (Bercovitz & Feldman & Feller & Burton, 2001; Feldman & Feller & Bercovitz & Burton, 2002; Markman & Phan & Balkin & Gianodis, 2005b).

c) new firm creation

Recent literature in the field has become most interested with new firm creation, especially in terms of universities generating spin-offs. Performance in this area has been operationalized in terms of quantity (number of spin-offs), financial performance of newly created firms (from attracting funding to growth and revenues), with characteristics of these enterprises also posing interesting questions. Research has explored especially factors contributing to the previously mentioned performance indicators, “university policy, faculty, technology transfer offices, underlying technology, investors, founding teams, networks in which a firm is embedded, and external conditions”.

d) environmental context, including networks of innovation.

The influence that the environment has on the impact of universities as entrepreneurial entities and especially on the new firms has raised an increasingly relevant set of research questions. Scholars have explored how four factors have

a direct influence (innovation networks, science parks, incubators, and geographic location). Some of the most notable findings point out that networks are especially beneficial in the field of innovation, increasing productivity, R&D capability and R&D output (Adams & Chiang & Starkey, 2001; Zucker & Darby, 2001; Zucker & Darby & Armstrong, 2002; Murray, 2004; Lofsten & Lindelof, 2005; Medda & Pigga & Siegel, 2005). At the same time, embeddedness in such networks contributes to survival by pooling resources and increasing exposure to potential customers and lucrative business partnerships (Lockett & Wright & Franklin, 2003; Murray, 2004).

Overall, the literature converges on the perspective that university entrepreneurialism is “a step in the natural evolution of a university system that emphasizes economic development in addition to the more traditional mandates of education and research” (Rothaermel & Agung & Jiang, 2007).

However, these 4 areas are general labels, containing a great level of complexity, and translating findings into replicable practice is further complicated by the diversity of HE institutions and systems across the world. The literature is yet to converge on a common paradigm and several initiatives to create a framework for universities to guide their strategy have been proposed (OECD, 2102), such as the HEInnovate initiative (Allison & Javorka, 2014). The HE Innovate benchmarking system proposes a process of self-reflection based on:

- leadership and governance
- organizational capacity, people, incentives
- entrepreneurship development through teaching and learning
- pathways for entrepreneurs
- knowledge exchange
- internationalization of the university
- measuring impact

Such frameworks provide useful tools for guiding strategy, yet they are based on self-reflection and inevitably turn decision-makers to the internal pool of creativity and vested interests rather than engaging in consistent customer discovery (Blank, 2013).

The present paper seeks to address this challenge by providing a clear process for articulating the needs of existing students in order to increase engagement and

adoption of programs, while informing the development of products and services both from a marketing *and* educational point of view.

This focus, a return to the educational mission of the university, is deliberate. So far, the previous literature tends to focus on issues of patents and IP commercialization in respect with the entrepreneurial university, as this is the most accessible way for HE institutions to capitalize on their work. However, many universities across the world cannot compete, entrepreneurially speaking, in the field of research commercialization, either for structural and policy reasons (not being in the right environment), economic reasons (low resources do not allow for building the required capabilities), as well as strategic reasons (focus on teaching). As such, a decision to consider the educational mission of the university as a more central part of HE entrepreneurialism is an opportunity for these institutions in particular, but also a requirement for even the most competent research universities due to the necessity of building up the human capital required to sustain their performance. Additionally, the educational impact of a university still represents the central element of its brand and fundraising activity, as a study of financial challenges of academic entrepreneurship centers across the world shows: student and program quality represent the main drivers of fundraising results, irrespective of geography and approaches to engaging large contributors (Finkle & Menzies & Goldsby & Kuratko, 2013).

Including this dimension in the entrepreneurial policy of any university requires approaching students as a market to be provided with the appropriate mix of services. The self-sustaining effect that good educational performance has on attracting better students, better faculty and increased income makes this a central strategic principle, around which all layers of academic entrepreneurialism should align.

With this in mind, the authors have undertaken an experiment to formulate the needs of students in the West University of Timisoara, Romania, in respect with entrepreneurship education across all Faculties, with two objectives:

1. collect data to inform the development of the program portfolio for the new entrepreneurship center in development at WUT
2. assess the applicability of Outcome Driven Innovation[®] as a tool for informing academic strategic marketing

2. Outcome Driven Innovation[®] as Methodology

In searching an appropriate methodology for formulating student needs and turning customer input on a very broad topic into concrete, actionable information, the authors have identified Outcome Driven Innovation[®] (ODI[®]) as a fitting candidate.

Developed by Strategyn as a solution for companies to better articulate and prioritize customer needs, ODI[®] is “a strategy and innovation process built around the theory that people buy products and services to get jobs done” (Ulwick, 2005, 2010). The methodology has gained recognition through articles published in Harvard Business Review (Ulwick, 2002), MIT Sloan Management Review (Ulwick, 2008) and endorsement from Clayton Christensen (Christensen & Anthony & Berstell & Nitterhouse, 2007), as well as being part of the R&D process leading to the development of the cardiac stent, the fastest growing medical product by sales.

2.1. Key Components of Outcome Driven Innovation[®] Methodology

The fundamental feature of ODI[®] is the task of providing a clear definition on what a customer need is as a requirement for providing innovation that serves the customer while driving profits. As such, the approach aims to shift the focus from the company, existing structures and “business as usual” to how the customer understands the need: a job he/she is seeking to get done, with a specific outcome.

One key aspect of this shift is changing the content of customer interaction. An approach focusing on the customer requires that the actual product/service is left out in order to prevent limiting the interaction to the assessment of a concrete solution. Doing so raises the risk of missing out vital insights on customers’ needs, insights which are usually obtained by asking these key questions:

- “what makes this job – or parts of it – challenging, frustrating or inconvenient?”
- “what makes this job time consuming?”
- “what makes this job go off-track?”
- “what aspects of this job are wasteful?”

Conceptualizing customer needs as jobs-to-be-done also has several key implications:

- a) a “job” is relevant “now and in the future”

As such, jobs are stable over the long-term, independent from the solutions that the customers may be applying to solve them at various moments in time. This is important for R&D departments of companies or institutions, as properly defining and understanding the job provides a powerful benchmark to continually

assess how well is the current offering (own or the competition) providing the appropriate solution.

b) customer “jobs” have a degree of universal acceptance

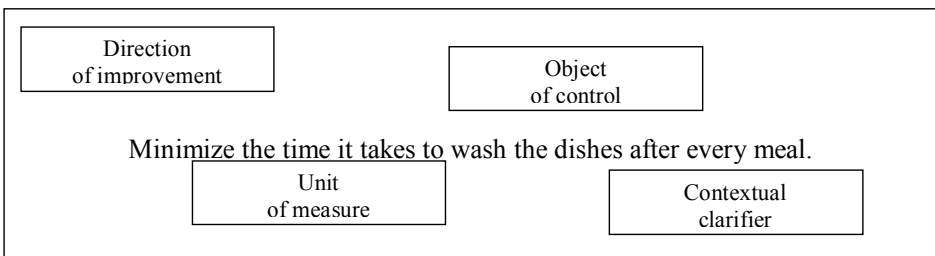
This point assumes that a correctly formulated and identified job is representative across a variety of locations and market segments. The fact that their importance will be perceived differently between different demographics is not a counter-argument to the conceptualization. To the contrary, that is actually what provides the opportunity to measure and prioritize market opportunities.

c) customer jobs provide a course of action

These aspects are important factors in the search for formulating concrete jobs, which is one of the main purposes of ODI[®]. The methodology provides specific rules for this aspect (focus on action, brevity, no ambiguity), which become further refined in formulating specific outcomes sought by the customer in solving each job. The difference between the two levels is first of all one of level of perspective. If job statements broadly define “what” the customer is trying to get done, outcome statements seek to detail “how” she/he considers that should be done. In other words, what is more important for the customer in the process of getting the specific job done.

To provide an example, “washing the dishes after every meal” is a simple job that all families in typical Western households need to carry out. However, there are various aspects which the market seeks to “increase” or “minimize”, the key words proposed by Strategyn to introduce an outcome statement being built on the following formula:

Fig. 1. Standard structure of an outcome statement



The challenge and the promise of ODI[®] as a methodology lies in identifying the multiple possible outcomes which are relevant for a customer. By keeping this focus and exploring all possibilities, R&D teams have the possibility of

identifying all the relevant aspects as a first step. In our example, customers may also express an interest in other outcomes such as minimizing costs or environmental impact, as well as maximizing cleanliness. This creates the possibility of building a hierarchy, which in turn will allow companies to understand which the underserved needs in the market are.

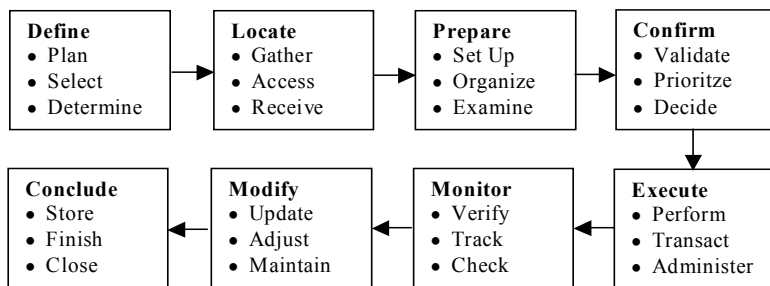
2.2. The Process

The process for outlining outcomes for a specific market and job is usually structured in four steps:

- preliminary discussions with target customers to draw out the general job map (full set of relevant jobs)
- ethnographic interviews to collect first-hand information on the mapped “use” scenarios
- group interview to formulate metrics used by customers (most outcomes defined at this stage)
- closing individual interviews to fine-tune the results

Throughout this process, the job map remains a useful point of reference, structuring the whole category of smaller level jobs which customers need to get done in order to successfully carry out the greater job.

Fig. 2. The generic job map



However, identifying the full set of jobs and providing a standard for formulation are not sufficient to provide an answer to customers’ priorities at market level. For this purpose, the designers of ODI[®] propose the opportunity

algorithm, a formula for quantifying the gap between the importance of a particular job or outcome and the level of satisfaction that customers feel regarding its use.

$$\text{Opportunity} = \text{Importance} + \max(\text{Importance} - \text{Satisfaction}, 0).$$

The resulting opportunity scores offer possibilities for determining whether a market is overserved, underserved or appropriately served, as well as highlighting which jobs and outcomes represent the most important market opportunities.

As such, ODI[®] promises to provide a clearly structured, standardized approach. We have considered this to be fit for the purpose of our research, given the scope of the long-term initiative, which seeks to inform the development of a new Entrepreneurship Center in the West University of Timisoara. The project is split in 3 stages, seeking to draw a roadmap for universities to properly formulate business models for their own centers by being able to answer to three key questions of the business model (Ostervalder & Pigneur, 2010):

- What should our value proposal be?
- Who are the key partners we should work with?
- What are the revenue sources we should rely on?

The authors have considered Outcome Driven Innovation[®] to provide a solution in answering the first questions because:

- it provides an algorithm to standardize the definition of customer needs
- it incorporates direct contact with customers at all steps
- it provides clear metrics and process for structuring and interpreting customer input

The first stage of the study sought to prioritize high-level jobs, as initial interviews indicated a variety of needs, and did not approach the outcome level, as further refinement and a complete job map are required for the top student needs highlighted by our research.

3. Outcome Driven Innovation[®] as Methodology

3.1. Preliminary Data Collection to Define Customer Jobs

The first step has been to interview students on the jobs they had sought to “get done” when starting up their business or when participating in entrepreneurship education programs. 17 hours of interviews have been carried out with 21 respondents, who were selected in order to include the following categories in the process:

- students who were already running their businesses
- alumni of well-known entrepreneurship education programs in Romania
- students with interest in entrepreneurship, but without experience or education
- students who had little to no interest in entrepreneurship (as control group and to identify overlap between entrepreneurship education and education in general, such as building a resume which stands out).

During the semi-structured interviews, the students were asked about:

- what programs, projects and courses on entrepreneurship education they had participated in (had “employed for their entrepreneurship jobs”)
- what results/information/support/ they had sought to obtain
- what were the limitations/challenges they had sought so overcome
- what were the jobs that the programs/courses they participated in did not help to get done
- which parts of the startup process are wasteful/time-consuming/frustrating/easily sidetracked

Students with no entrepreneurial intention were asked similar questions in respect with the jobs they seek to get done by pursuing higher education and other types of extracurricular programs, to identify any possible overlap that these may

have with entrepreneurship as a career path (such as earning money, developing skills, etc), as well as entrepreneurship education as tool for career building.

After processing the interviews, the research team has identified a total of 65 jobs:

- 19 business model jobs (defining and validating the business concept)
- 7 securing and managing investment jobs
- 13 operational management jobs
- 5 legal compliance jobs
- 21 personal/professional development jobs

3.2. Survey to Prioritize Identified Jobs

To provide actionable conclusions for developing the entrepreneurship education programs portfolio, the second stage has surveyed students on these jobs.

The questionnaire collected information on:

- General data about respondents (age, faculty, level of study)
- Entrepreneurial intention, questions modeled after the GUESS 2011 Survey (Sieger & Fueglistaller & Zellweger, 2011)
- Likert scale questions on the 65 jobs

For the last section, the respondents were first asked to rate how important they considered each job, followed by rating how satisfied they were with their own ability to successfully carry out each of the indicated jobs.

The questionnaire was distributed to all faculties through the WUT Student Association, which is responsible for electing students' representatives in the University Senate, as well as the Senate of each faculty. The information was distributed through student representatives for each faculty with endorsement from the Rector's office, using no other channel. Responses were collected in 5 days from 286 students from the 10 of the 11 faculties totaling 14 000 students (95 reliability, +/- 6%).

4. Analysis of Responses

Responses have been processed in two steps:

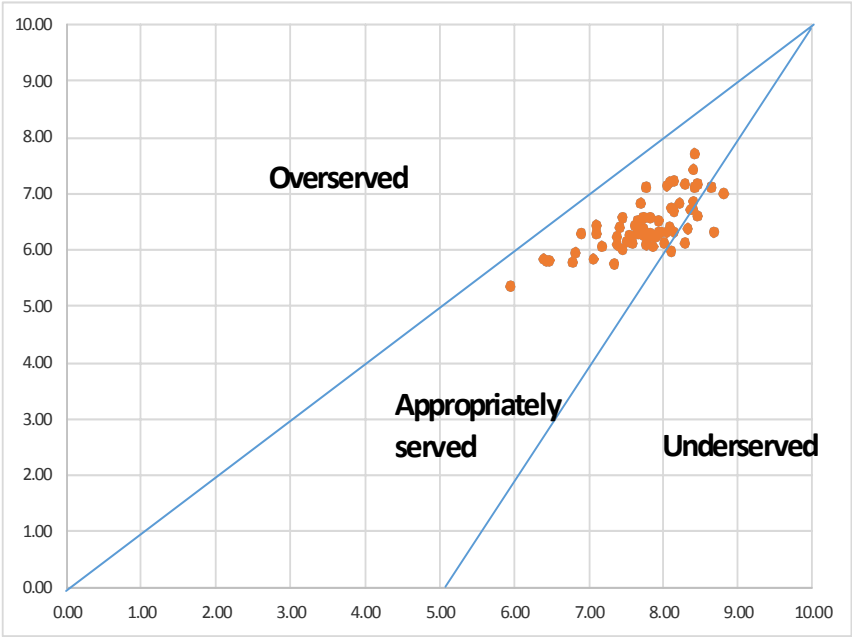
- Outcome Driven Innovation® analysis at the level of the entire sample (university level)
- Chi Squared test for relationships between respondent characteristics and importance/satisfaction assigned to jobs
- Outcome Driven Innovation® analysis at the level of relevant segments

4.1. Outcome Driven Innovation® Analysis of the Entire Sample

The first insight provided by the importance (IMP) and satisfaction (SAT) scores is an overview of the general saturation of the market in respect with solutions for the jobs. Scores are calculated as the percentage of *important/very important*, respectively *satisfied/very satisfied* responses divided by 10 (i.e., 86.7% consider it is important/very important to “obtain financing”, resulting in a 8.67 IMP score).

The distribution of job scores (Fig.1) indicates that the market for products and services serving jobs related to entrepreneurship careers is *appropriately served*. A small number of jobs represent underserved needs, without reaching high values however.

Fig. 3. Distribution of IMP and SAT scores for identified jobs



Calculating individual opportunity scores with the Outcome Driven Innovation[®] formula $Opportunity = Importance + (Importance - Satisfaction)$ provides further insights into the opportunity provided by each job, both by prioritizing jobs and by considering each opportunity score against a baseline value: OPP score higher than 10 indicates a *solid opportunity*; higher than 12 a *high opportunity*; higher than 15 an *extreme opportunity*.

Table 1. Highest opportunity jobs based on OPP score

JOB	SCORE
To obtain funding	11.01
To effectively use funds received from an investor	10.63
To accurately estimate the costs of a business / project	10.45
To effectively manage the finances of business	10.31
To make a professional business plan	10.28
To accurately estimate the revenues of a business / project	10.24
To develop my skills in the field in which I want to specialize	10.17
To build credibility for a business	10.07
To negotiate well with clients or business partners	10.00
To bootstrap a business	9.97

Individual scores indicate that several of the jobs provide a *solid opportunity* for new entrepreneurship program development or improvement of existing programs, but without great expectations from the local market. Further implications of these results are discussed in Conclusions.

4.2. Testing Correlation Between Scores and Segmentation Criteria

The study was initiated with an expectation that *Entrepreneurial intention* and *Faculty* would be the most important drivers for different needs in terms of jobs to be done among students, followed by *Age*, *Degree* and potentially *Sex*.

To confirm this, the Chi Squared test was used for the IMP and SAT scores of each of the 10 jobs with the highest OPP score at university level. The test indicated that no statistically significant correlation between IMP and SAT scores and any of the segmentation variables.

While surprising, this can be attributed to two causes:

- entrepreneurship skills and opportunities are equally available (or unavailable) both vertically (*Age*, *Degree*) and horizontally (*Faculty*, *Intention*, *Sex*) throughout the university, without having any impact on student needs for startup support
- overall underrepresentation of groups on some criteria (*Faculty*) or low occurrence of respondents in some of the segments (especially students with high entrepreneurial *Intention*), leading to few respondents in these categories and potential distortions.
- While more data is required to settle this question, the first option does correspond to observations based on the team's experience of running entrepreneurship courses and extracurricular programs over the years.

4.3. Outcome Driven Innovation® Analysis at the Level of Relevant Segments

While correlation tests indicated no statistically relevant relationship between segmentation variables and scores, the team decided to calculate OPP scores by *Faculty* and *Intention* in order to see if any of the results can inform future research or program development by identifying top 10 jobs for each of the two variables and comparing them to level of opportunity baselines. The team was also interested to identify the extent to which there is overlap or consistent differences between various segments and the overall student population in WUT.

4.3.1. Faculty. Students in the *Faculty of Arts* have the highest top 10 OPP scores, ranging from 14.5 to 13.6; in fact, 50 out of 65 jobs have an OPP score of over 10 for this group. The reason was identified to be very low satisfaction: while these students have IMP scores similar to those in other faculties (average 7.92), their SAT scores are visibly the lowest of all (average 4.78), indicating that further research can reveal a high level of opportunity in this respect. An important observation is that there is very low overlap between their priority jobs and those of the general population (only 1 job).

Students in *Mathematics & Computer Science* follow a very similar trend, with very 5.5 average SAT, top 10 range of 14.0 – 12.5 and only 1 job correspondence with university top 10 jobs.

Students in the *Faculty of Physics* seem to be the least interested in entrepreneurship (both in terms of OPP and IMP scores), followed by Law students.

Students in 4 faculties (*Chemistry, Biology and Geography; Letters; Political Science; Sociology and Psychology*) follow a medium trend by comparison to the previous cases and have a better correspondence with overall WUT scores (5-6 common top jobs). Students in *Economics and Business Administration* are very similar in this respect, but with somewhat lower OPP scores.

4.3.2. Entrepreneurial intention. The highest OPP scores are associated with *students who already work in their own business* (17.5 highest score to 12.5). Correspondence with overall WUT scores relatively high (5 jobs), driven by relatively low average SAT scores.

High OPP scores are also associated with *students who have already launched and closed a business* (16.6 highest score). SAT scores are the lowest in the group, probably due to experiences and feelings associated with having failed at launching/growing their business.

Surprisingly, students *who have started the process of launching a business* provide relatively low scores, with little correspondence to overall WUT scores. OPP scores are pushed downward by extremely high SAT scores (average 9.54) which require further investigation to confirm.

It is important to note that students in the above groups represent a very small proportion of the sample. While this definitely reflects trends observed in the student population, the low number of respondents does not allow for a fully reliable prediction of the needs of other entrepreneurial students.

Students who express future entrepreneurial intention (have repeatedly thought about launching a business or have taken a concrete decision to launch a business) are in the middle range, with relatively average OPP scores compared to other *Intention* segments. Correspondence with WUT overall top jobs is strong (5 or more jobs in common).

Students with low to no entrepreneurial intention provide relatively low OPP scores. They represent just over 50% of the sample.

5. Conclusions

The analysis has provided useful insights by identifying high scoring jobs, but also by pointing out which ones appear repeatedly in top 10 for various groups. There is a strong correspondence between overall WUT jobs and the ones that repeatedly show top OPP scores by *Faculty* or *Intention*, jobs which are also primarily financial in their nature: estimating costs and revenue, securing funds, managing the finances of a business.

The team has also looked at the least asked-for jobs and was surprised to find some considered to be extremely valuable in the entrepreneurial process by the research team, both educationally and business-wise. This is the case for jobs such as *to have detailed knowledge of a specific market*, *to identify effective distribution channels* and, most notably, *to build a test version of my product/service*, which occupies one of the last spots in most rankings. It is important to note that the low OPP scores of these jobs are driven especially by relatively low IMP scores, which serves as a reminder that the marketing strategy of the WUT Entrepreneurship Center – and of any entrepreneurial university – must strike a balance between the objectives of serving existing demand AND educating the market. This is also highlighted by generally high SAT scores for most respondents, while entrepreneurial intention remains very low, which raises two important questions: are students overconfident in their abilities to get jobs done? Is there insufficient awareness of the day-to-day challenges of an entrepreneurial career? Practical experiences with existing programs and courses in the WUT seem to point that the answer is affirmative for both questions.

Of course, it must be also taken into account that the customer input measured reflected only broader jobs and not detailed outcome for each of the jobs. This focus has been chosen for the purpose of the research to provide a clearer direction before drawing a full job map for some of the tasks carried out by young entrepreneurs. In this respect, most of the jobs identified for the interview can be narrowed down to specific outcomes. For instance, “minimize the time it takes to meet a potential investor”, “minimize equity in the company sold to investors for capital” or “increase the amount/investor fundraised” can all be specific outcomes for the most prominent of the jobs – securing finance. However, the purpose of this initial study has been to identify the most relevant jobs, reserving the deeper analysis of these initial findings for the top 10 jobs.

Even in this format, the results helpfully point out to a few strategic conclusions for developing the portfolio of the Entrepreneurship Center focusing on the jobs classified as *solid opportunities* on the basis of OPP scores:

a) building competence to provide three categories of programs:

a. entrepreneurial culture programs (providing an introduction to entrepreneurship) focusing on how working to start a business is a powerful way to boost hard skills in specific disciplines, a job highly prioritized by students;

b. “taster” programs (providing a safe, educational version of the startup experience) to enforce competencies development and increase the level of satisfaction for creatively attracting resources and managing existing ones, while learning the importance of building and testing the product rapidly in order to accurately estimate costs and revenues;

c. startup support programs (access to finance and mentoring).

b) Highlighting in all communication efforts across the campus and outside the university how the programs help students in getting top jobs done.

This approach will be employed both in terms of programs run by the Entrepreneurship Center, as well as existing programs and courses. Further research is necessary to map out the existing offer to avoid overlap and create partnerships and synergy across the campus.

Overall, Outcome Driven Innovation[®] has provided practical insights for providing a big picture of students’ needs and interests in entrepreneurship education and support. The methodology has provided a precise framework with practical conclusions. However, its usefulness can be seen beyond the scope of the present research: creating a unitary barometer of student importance and satisfaction in carrying out entrepreneurial tasks. This is made possible by the standardized approach and especially by the universality of the identified jobs. This can constitute the basics for a good global benchmark for a market for entrepreneurship education, fostering a common discussion on student needs across wider geographies or as part of collaborative initiatives between institutions.

While the opportunities identified for the new Entrepreneurship Center need to be tested in the following academic year, the current research has found that Outcome Driven Innovation can provide a complete toolset for improving how universities formulate their value proposal by providing clear algorithms and metrics to prioritize what the customers actually want to get done. In an increasingly competitive market where customers shop around to decide where they will invest years of their life and a considerable amounts of money, this becomes a vital competency for any entrepreneurial university.

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APPENDIX

Table 2. IMP, SAT and OPP scores for all identified jobs

JOB	IMP	SAT	OPP
To obtain funding	8.67	6.33	11.01
To effectively use funds received from an investor	8.81	6.99	10.63
To accurately estimate the costs of a business / project	8.29	6.12	10.45
To effectively manage the finances of business	8.46	6.61	10.31
To make a professional business plan	8.32	6.36	10.28
To accurately estimate the revenues of a business / project	8.11	5.98	10.24
To develop my skills in the field in which I want to specialize	8.64	7.10	10.17
To build credibility for a business	8.39	6.71	10.07
To negotiate well with clients or business partners	8.36	6.71	10.00
To bootstrap a business	8.15	6.33	9.97
To be motivated / disciplined to lead a project to launch a business to the end or until reaching an important milestone	8.39	6.85	9.93
To know how to open a business from a legal point of view	8.01	6.12	9.90
To document and prove my skills	8.46	7.17	9.76
To take decisions	8.43	7.10	9.76
To identify the most appropriate customers for a product / service	8.08	6.40	9.76
To identify the key resources for a new business	8.04	6.33	9.76
To identify the specific needs of a customer segment	7.87	6.05	9.69
To communicate professionally in business	8.22	6.82	9.62
To earn money	8.15	6.68	9.62
To identify sources of funding for a business idea	7.97	6.33	9.62
To streamline the operations of a business	7.90	6.22	9.58
To effectively manage customers	7.94	6.33	9.55
To secure official financial incentives and tax exemptions	7.90	6.26	9.55
To build a team	8.11	6.75	9.48
To identify the main risks and operational issues	7.76	6.08	9.44
To develop my general working skills (communication, team work, etc.)	8.29	7.17	9.41
To manage a business in terms of legal and tax	7.94	6.50	9.37
To approach investors	7.83	6.29	9.37
To determine the right price for a product / service	7.80	6.22	9.37
To set priorities	8.39	7.41	9.37
To attract new customers for a new business	7.76	6.26	9.27
To effectively manage inventory	7.73	6.26	9.20
To respect the priorities set	8.43	7.69	9.16

To sell	7.83	6.57	9.09
To identify a good business idea	7.73	6.36	9.09
To have confidence that I can start a business	8.15	7.24	9.06
To find solutions for competitive differentiation	7.59	6.12	9.06
To identify and approach business partners	7.66	6.29	9.02
To define a strategy for a business	7.66	6.36	8.95
To have a positive impact on society	8.08	7.20	8.95
To define the package of products / services suitable for a customer segment	7.34	5.73	8.95
To solve problems	8.04	7.13	8.95
To understand the requirements and approval processes in a particular field	7.45	6.01	8.88
To make a professional request for funding	7.52	6.15	8.88
To identify suitable partners for a business	7.73	6.57	8.88
To get endorsements and contacts providing credibility with investors	7.55	6.26	8.85
To establish effective channels to promote a product / service	7.66	6.50	8.81
To attract new customers for an existing business	7.62	6.43	8.81
To earn visibility and exposure for a business	7.38	6.08	8.67
To get a job	7.69	6.82	8.57
To take informed decisions on issues of taxation and taxes	7.38	6.22	8.53
To test my own skills	7.76	7.10	8.43
To understand how to manage the daily operational activities of a company	7.41	6.40	8.43
To get answers and feedback from experienced entrepreneurs and professionals	7.45	6.57	8.32
To calculate how quickly I can return my investment	7.17	6.05	8.29
To network	7.06	5.84	8.29
To identify the most important sources of competition	7.10	6.29	7.90
To establish effective distribution channels for a product / service	6.78	5.77	7.80
To identify the key activities for a new business	7.10	6.43	7.76
To know in detail a particular market	6.82	5.94	7.69
Formulate steps launch of a product / service	6.89	6.29	7.48
To build a personal brand	6.47	5.80	7.13
To confirm that a product / service is an innovative	6.43	5.80	7.06
To delegate	6.40	5.84	6.96
To conduct a test version of a product / service	5.94	5.35	6.54

Table 3. IMP, SAT and OPP scores for all identified jobs by Faculty

JOB	Arts	Chemistry Biology	Law	Business Administration	Physics	Literature	Maths, Computer Science	Political Science, Communication, Philosophy	Sociology, Psychology	GENERAL	Top 10 common
To obtain funding	10.00	11.25	8.33	10.52	10.00	11.71	12.00	12.00	12.97	11.01	5
To effectively use funds received from an investor	11.82	10.75	8.33	10.39	5.00	10.49	10.50	12.25	13.24	10.63	4
To accurately estimate the costs of a business / project	11.82	11.50	8.33	9.74	5.00	11.46	10.50	11.25	12.16	10.45	3
To effectively manage the finances of business	13.64	8.00	5.83	10.52	1.67	10.24	11.50	12.00	12.97	10.31	6
To make a professional business plan	11.82	9.25	8.33	9.48	6.67	10.98	11.00	12.00	12.97	10.28	4
To accurately estimate the revenues of a business / project	11.82	10.75	10.00	9.48	6.67	11.71	11.50	11.00	11.89	10.24	3
To develop my skills in the field in which I want to specialize	10.91	10.75	9.17	10.13	5.00	10.49	11.00	9.50	10.27	10.17	2
To build credibility for a business	10.91	10.25	7.50	9.87	5.00	9.27	11.50	11.00	11.89	10.07	
To negotiate well with clients or business partners	10.91	9.75	7.50	10.65	1.67	9.51	13.00	11.00	11.89	10.00	2
To bootstrap a business	14.55	8.75	8.33	9.35	5.00	9.51	12.00	11.25	12.16	9.97	4
To be motivated / disciplined to lead a project to launch a business to the end or until reaching an important milestone	9.09	10.25	5.00	11.17	5.00	9.02	11.50	10.75	11.62	9.93	
To know how to open a business from a legal point of view	13.64	8.00	5.00	10.65	6.67	9.51	12.50	10.75	11.62	9.90	5
To document and prove my skills	10.00	10.25	6.67	9.74	5.00	8.05	12.50	10.75	11.62	9.76	
To take decisions	10.00	8.75	9.17	10.52	6.67	7.80	11.50	11.25	12.16	9.76	4
To identify the most appropriate customers for a product / service	10.91	10.00	5.83	10.26	10.00	9.51	9.50	10.50	11.35	9.76	2
To identify the key resources for a new business	14.55	10.75	9.17	9.48	5.00	10.00	10.00	8.50	9.19	9.76	3
To identify the specific needs of a customer segment	11.82	9.50	6.67	10.39	3.33	10.24	7.50	9.50	10.27	9.69	2
To communicate professionally in business	12.73	8.25	5.83	9.87	5.00	8.54	12.50	11.75	12.70	9.62	3
To earn money	10.91	8.50	8.33	9.61	5.00	9.51	12.50	9.75	10.54	9.62	
To identify sources of funding for a business idea	10.91	11.00	5.83	8.18	3.33	10.24	11.00	11.25	12.16	9.62	3
To streamline the operations of a business	14.55	9.00	9.17	8.83	5.00	9.02	12.00	11.00	11.89	9.58	3
To effectively manage customers	10.91	10.00	4.17	8.44	5.00	9.27	13.00	11.50	12.43	9.55	3
To secure official financial incentives and tax exemptions	11.82	10.25	7.50	8.83	5.00	9.51	11.50	9.75	10.54	9.55	
To build a team	12.73	9.00	6.67	8.83	6.67	8.78	10.00	11.25	12.16	9.48	3
To identify the main risks and operational issues	14.55	9.50	3.33	9.35	5.00	9.02	11.00	10.25	11.08	9.44	2
To develop my general working skills (communication , team work , etc.)	12.73	9.75	7.50	8.83	6.67	9.51	9.50	9.75	10.54	9.41	

To manage a business in terms of legal and tax	10.00	9.25	9.17	8.44	1.67	10.00	11.50	11.25	12.16	9.37	3
To approach investors	10.91	7.50	5.83	9.74	1.67	8.78	10.50	11.00	11.89	9.37	
To determine the right price for a product / service	10.00	8.50	9.17	9.09	6.67	8.54	11.00	10.75	11.62	9.37	2
To set priorities	13.64	8.25	7.50	9.87	3.33	9.51	9.50	10.00	10.81	9.37	2
To attract new customers for a new business	10.91	8.00	7.50	10.26	5.00	8.05	12.50	10.00	10.81	9.27	2
To effectively manage inventory	12.73	8.75	5.83	8.05	1.67	9.76	12.50	11.00	11.89	9.20	
To respect the priorities set	9.09	9.50	6.67	9.22	1.67	8.05	11.00	10.00	10.81	9.16	
To sell	12.73	8.75	6.67	8.70	5.00	10.00	8.50	10.00	10.81	9.09	
To identify a good business idea	9.09	8.00	10.00	10.52	3.33	7.80	7.50	10.25	11.08	9.09	2
To have confidence that I can start a business	8.18	8.00	8.33	9.22	5.00	10.24	9.50	11.25	12.16	9.06	3
To find solutions for competitive differentiation	10.91	7.50	7.50	8.70	10.00	9.02	11.50	9.25	10.00	9.06	
To identify and approach business partners	12.73	9.00	5.83	8.70	5.00	9.02	12.00	8.25	8.92	9.02	
To define a strategy for a business	7.27	8.00	7.50	8.96	1.67	10.24	9.00	10.50	11.35	8.95	
To have a positive impact on society	10.91	9.25	5.83	8.05	1.67	8.54	10.50	10.50	11.35	8.95	
To define the package of products / services suitable for a customer segment	13.64	8.00	3.33	9.48	1.67	9.76	5.50	10.50	11.35	8.95	2
To solve problems	10.00	8.75	7.50	8.96	5.00	8.05	10.50	9.50	10.27	8.95	
To understand the requirements and approval processes in a particular field	11.82	8.25	8.33	7.92	3.33	8.54	11.00	10.50	11.35	8.88	
To make a professional request for funding	13.64	8.75	5.00	8.57	-5.00	9.27	11.00	10.25	11.08	8.88	2
To identify suitable partners for a business	10.91	7.75	8.33	9.61	6.67	8.54	9.00	7.75	8.38	8.88	
To get endorsements and contacts providing credibility with investors	11.82	7.50	4.17	7.92	3.33	9.76	8.00	11.25	12.16	8.85	2
To establish effective channels to promote a product / service	14.55	7.50	3.33	9.48	8.33	8.78	7.50	10.50	11.35	8.81	3
To attract new customers for an existing business	13.64	8.00	8.33	8.18	3.33	7.80	14.00	10.75	11.62	8.81	2
To earn visibility and exposure for a business	9.09	8.75	7.50	8.44	5.00	8.54	13.50	8.00	8.65	8.67	
To get a job	8.18	11.25	7.50	8.44	3.33	7.07	11.00	8.25	8.92	8.57	
To take informed decisions on issues of taxation and taxes	10.00	8.00	8.33	8.05	3.33	9.27	9.00	9.50	10.27	8.53	
To test my own skills	7.27	7.75	4.17	8.18	5.00	8.78	12.50	9.50	10.27	8.43	
To understand how to manage the daily operational activities of a company	8.18	8.25	9.17	9.22	1.67	8.54	10.50	7.50	8.11	8.43	
To get answers and feedback from experienced entrepreneurs and professionals	8.18	7.50	3.33	8.96	5.00	8.29	9.50	8.25	8.92	8.32	
To calculate how quickly I can return my investment	12.73	7.50	5.83	8.05	1.67	8.54	11.00	8.75	9.46	8.29	
To network	8.18	7.00	5.00	9.22	6.67	6.59	10.50	8.25	8.92	8.29	

To identify the most important sources of competition	7.27	8.50	5.83	7.53	6.67	7.56	10.50	9.25	10.00	7.90	
To establish effective distribution channels for a product / service	12.73	6.50	4.17	8.18	5.00	9.27	6.50	6.25	6.76	7.80	
To identify the key activities for a new business	10.91	6.75	5.00	7.92	5.00	7.32	9.00	8.50	9.19	7.76	
To know in detail a particular market	10.00	7.25	5.00	7.92	6.67	8.29	11.00	7.00	7.57	7.69	
Formulate steps launch of a product / service	9.09	7.00	8.33	7.14	3.33	9.51	6.50	7.00	7.57	7.48	
To build a personal brand	12.73	8.50	6.67	4.68	3.33	8.05	10.50	8.00	8.65	7.13	
To confirm that a product / service is an innovative	10.00	8.25	6.67	5.97	1.67	6.83	9.00	7.25	7.84	7.06	
To delegate	8.18	5.75	5.83	7.53	1.67	6.83	8.50	7.50	8.11	6.96	
To conduct a test version of a product / service	6.36	6.50	5.00	6.10	6.67	6.10	8.50	4.75	5.14	6.54	

Table 4. IMP, SAT and OPP scores for all identified jobs by *Intention*

Job	Working on launching a business	Launched and closed a business	Taken decision to start a business	Have a plan for launching a business	Currently working in my business	Repeatedly thought about it	Rarely thought about it	Never considered it	GENERAL	Common top 10
To obtain funding	8.33	6.67	12.86	10.83	12.50	10.60	10.66	9.47	11.01	4
To effectively use funds received from an investor	10.00	6.67	12.14	9.17	12.50	10.90	9.74	8.95	10.63	5
To accurately estimate the costs of a business / project	3.33	16.67	13.57	10.83	7.50	10.45	10.00	8.42	10.45	5
To effectively manage the finances of business	10.00	13.33	11.43	10.83	15.00	10.00	8.68	8.95	10.31	4
To make a professional business plan	11.67	6.67	13.57	10.83	12.50	9.40	10.26	6.84	10.28	4
To accurately estimate the revenues of a business / project	6.67	16.67	13.57	10.00	15.00	9.25	10.26	9.47	10.24	5
To develop my skills in the field in which I want to specialize	10.00	13.33	10.00	10.83	7.50	10.60	9.08	8.95	10.17	3
To build credibility for a business	10.00	10.00	11.43	11.67	10.00	10.30	10.00	5.79	10.07	3
To negotiate well with clients or business partners	10.00	10.00	11.43	10.83	7.50	8.81	9.21	8.42	10.00	3
To bootstrap a business	10.00	0.00	10.71	10.00	10.00	9.85	8.95	7.37	9.97	
To be motivated / disciplined to lead a project to launch a business to the end or until reaching an important milestone	10.00	3.33	11.43	11.67	15.00	9.25	9.08	8.42	9.93	3
To know how to open a business from a legal point of view	10.00	6.67	14.29	9.17	0.00	9.85	8.29	8.95	9.90	3
To document and prove my skills	8.33	16.67	10.71	11.67	7.50	9.55	9.08	7.37	9.76	
To take decisions	6.67	16.67	10.71	12.50	10.00	8.96	9.21	6.84	9.76	3

To identify the most appropriate customers for a product / service	8.33	13.33	10.00	13.33	5.00	9.25	8.68	8.42	9.76	2
To identify the key resources for a new business	6.67	10.00	12.86	14.17	12.50	9.25	9.61	6.32	9.76	3
To identify the specific needs of a customer segment	8.33	10.00	12.14	13.33	5.00	10.90	7.11	7.89	9.69	2
To communicate professionally in business	10.00	3.33	12.86	10.83	7.50	9.85	8.82	7.89	9.62	
To earn money	8.33	13.33	7.14	10.83	7.50	10.15	8.29	9.47	9.62	2
To identify sources of funding for a business idea	10.00	6.67	12.86	8.33	7.50	9.40	8.82	7.89	9.62	
To streamline the operations of a business	10.00	6.67	9.29	13.33	7.50	10.00	9.47	7.37	9.58	4
To effectively manage customers	10.00	10.00	12.86	10.00	5.00	9.55	8.29	5.79	9.55	
To secure official financial incentives and tax exemptions	6.67	6.67	13.57	7.50	12.50	8.66	8.55	7.37	9.55	3
To build a team	10.00	16.67	12.14	8.33	12.50	7.91	9.08	8.42	9.48	4
To identify the main risks and operational issues	6.67	10.00	12.86	11.67	7.50	9.55	7.89	5.26	9.44	
To develop my general working skills (communication , team work , etc.)	10.00	6.67	10.71	10.83	12.50	9.70	8.55	6.84	9.41	2
To manage a business in terms of legal and tax	3.33	0.00	13.57	7.50	7.50	9.10	9.08	6.84	9.37	
To approach investors	10.00	13.33	12.14	11.67	7.50	8.96	8.42	5.26	9.37	
To determine the right price for a product / service	3.33	10.00	13.57	12.50	10.00	8.51	9.34	6.84	9.37	3
To set priorities	10.00	13.33	10.71	9.17	12.50	9.55	8.03	5.79	9.37	2
To attract new customers for a new business	10.00	3.33	9.29	10.83	12.50	8.81	9.08	6.84	9.27	2
To effectively manage inventory	6.67	16.67	10.00	10.00	7.50	9.25	8.42	6.84	9.20	
To respect the priorities set	10.00	13.33	8.57	8.33	10.00	9.70	8.68	6.84	9.16	
To sell	1.67	10.00	10.00	10.00	7.50	9.70	8.42	5.26	9.09	
To identify a good business idea	10.00	16.67	10.00	12.50	10.00	10.75	6.71	6.32	9.09	4
To have confidence that I can start a business	6.67	0.00	13.57	10.00	15.00	9.40	8.29	8.42	9.06	3
To find solutions for competitive differentiation	10.00	16.67	10.00	10.00	15.00	8.51	8.95	5.79	9.06	3
To identify and approach business partners	10.00	13.33	11.43	10.00	10.00	8.51	7.50	8.42	9.02	2
To define a strategy for a business	6.67	10.00	12.14	12.50	5.00	8.96	8.82	7.37	8.95	
To have a positive impact on society	10.00	13.33	9.29	9.17	7.50	8.21	7.89	8.42	8.95	2
To define the package of products / services suitable for a customer segment	3.33	16.67	10.00	13.33	5.00	8.96	7.50	7.37	8.95	2
To solve problems	8.33	10.00	10.00	9.17	7.50	9.25	8.82	5.79	8.95	
To understand the requirements and approval processes in a particular field	6.67	10.00	9.29	7.50	0.00	9.40	7.89	8.42	8.88	
To make a professional request for funding	11.67	0.00	14.29	5.83	5.00	8.51	7.37	7.37	8.88	2
To identify suitable partners for a business	10.00	16.67	8.57	6.67	12.50	8.66	8.68	6.32	8.88	3
To get endorsements and contacts providing credibility with investors	5.00	6.67	12.86	7.50	-2.50	9.40	8.03	7.37	8.85	
To establish effective channels to promote a product / service	10.00	0.00	14.29	15.00	2.50	7.46	8.16	5.79	8.81	3

To attract new customers for an existing business	10.00	3.33	9.29	6.67	10.00	8.96	9.21	5.26	8.81	2
To earn visibility and exposure for a business	6.67	10.00	12.14	11.67	7.50	7.76	8.82	5.26	8.67	
To get a job	6.67	3.33	6.43	9.17	2.50	8.66	8.55	7.89	8.57	
To take informed decisions on issues of taxation and taxes	6.67	6.67	10.00	7.50	2.50	8.06	7.37	4.74	8.53	
To test my own skills	10.00	3.33	9.29	8.33	5.00	8.51	7.50	7.89	8.43	
To understand how to manage the daily operational activities of a company	3.33	16.67	7.86	7.50	7.50	8.36	7.50	5.79	8.43	
To get answers and feedback from experienced entrepreneurs and professionals	6.67	10.00	10.00	10.00	5.00	8.81	7.24	5.26	8.32	
To calculate how quickly I can return my investment	3.33	10.00	11.43	8.33	7.50	8.06	6.84	6.84	8.29	
To network	6.67	16.67	10.00	8.33	2.50	8.06	8.03	4.21	8.29	
To identify the most important sources of competition	6.67	6.67	12.14	8.33	10.00	6.42	8.42	6.32	7.90	
To establish effective distribution channels for a product / service	6.67	10.00	12.14	8.33	12.50	7.76	7.63	4.74	7.80	
To identify the key activities for a new business	6.67	10.00	10.71	7.50	12.50	8.96	6.97	5.26	7.76	
To know in detail a particular market	6.67	3.33	10.71	12.50	2.50	5.37	8.03	7.37	7.69	
Formulate steps launch of a product / service	8.33	10.00	10.00	10.00	12.50	7.91	6.45	6.32	7.48	
To build a personal brand	10.00	0.00	7.86	9.17	-2.50	7.91	6.05	3.16	7.13	
To confirm that a product / service is an innovative	1.67	10.00	8.57	8.33	5.00	8.06	7.37	2.63	7.06	
To delegate	6.67	10.00	10.00	7.50	2.50	7.46	6.84	3.68	6.96	
To conduct a test version of a product / service	3.33	16.67	9.29	5.83	17.50	5.22	8.16	4.74	6.54	2

