

Creating an Entrepreneurial Mindset at Infineon Technologies: The Infineon-Babson Global Manager Development Program

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Abstract: In the brutally competitive world of high technology markets the need to manage and stimulate change is ever-present. A critical component for preparing companies to become “agile giants” is customized management development intervention that allows participants to learn and problem solve in environments that match closely their corporate challenges. This article describes the longitudinal relationship between Infineon Technologies, a German semiconductor manufacturer, and Babson College, a leading executive education provider. A centerpiece of the resultant program – running now for 6 years – is an action-based exercise where participants apply concepts and tools to actionable real-world company projects. Our goal is to create a strong opportunity focus whereby the company can quickly identify and bring to market new product ideas while still undertaking rigorous analytical due diligence. We describe the criteria used in selecting an academic partner, considerations employed in designing the program (Global Management Development), the importance of continuous improvement (e.g., taking a program module to China), and the metrics used to measure program performance. We conclude with the lessons learned from the partnership. Critically, these lessons are transferable to other customized program clients and to other executive education providers. Trusted partnerships result from commitment, openness and intellectual curiosity on both sides and it is hoped that this article provides some of the key guidelines required for program and company success.

Key Words: Executive education, change, action-based learning, partnership, continuous improvement

Introduction

The semiconductor industry is a tough, uncompromising business where global competition is intense, technological and market change is endemic, and players continuously struggle to read the customer “tea leaves” and rise above commodity status. As a recent internal document at Infineon Technologies urgently noted: “In the semiconductor industry, learning, knowledge management and change management are not merely “nice-to-have”; instead, they represent essential elements for securing the future and ensuring the survival of the company”

It went on to say:

“The opportunities and constraints of the semiconductor industry (such as relatively high market growth, continuous technological development and high capitalization) necessitate an emphatically entrepreneurial management style. The successful discovery and implementation of new business opportunities/innovations is of vital importance to a company. The primary focus of the activities run by (Learning and Development: LD) should be to help train the “corporate entrepreneurs” required for this purpose and to establish a common understanding of internal entrepreneurship and innovation.”

A final quote from the Infineon document completes a strong sense of context from which the strategic partnership forged with Babson College can be appreciated:

“The main clientele for LD work in semiconductor companies are engineers, who typically feature distinctive potential/capacities and “blind spots”. Particular emphasis must be placed on building up more advanced capabilities in “underexposed” areas of social/leadership competencies as well as on classic business and commercial know-how.”

Background

Infineon Technologies, headquartered in Munich, Germany, emerged as a spin-off from Siemens AG in 1999 when the latter company decided to divest itself of what it considered non-core businesses. The company originally comprised both Memory and Logic Divisions, although the memory products were separated out into a subsidiary, Qimonda, in 2006. It now offers semiconductor and systems solutions for automotive, industrial electronics, chip card and security (about 70% of turnover) as well as applications in communications (30%). In fiscal year 2007 the company achieved more than €4 billion in revenues, with Qimonda generating a similar amount. It has, however,

proved challenging to generate positive net income over much of its lifetime due to factors such as excessive manufacturing capacity, heavy requirements for both R&D and capital investments, continuous market and technology change and enormous cyclicity in product demand. How then could executive education assist in preparing a company to compete in such a hostile and demanding environment?

Selecting an Academic Partner

Infineon management were quick to appreciate the need to identify and train high potential employees who had a) conceptually rigorous tools for examining strategic and operational challenges facing the semiconductor industry, and b) could explore these issues within the global context in which the company now operated. The decision to select Babson College to design and run the Global Manager Development (GMD) Program rested on a number of key considerations that included:

- A very strong emphasis on entrepreneurial thinking
- A willingness to carefully customize program content and to collaborate closely with Infineon personnel
- The introduction of action-based learning activities that would allow “real-time” application of conceptual tools

It is worth taking some time to examine each of these added value components a little more deeply:

The School of Executive Education at Babson had built a strong niche strategy – evolved from its strength and reputation in the teaching and study of start-up entrepreneurship¹ – in the associated field of corporate entrepreneurship. That is, bringing the entrepreneurial mindset to the medium or large sized corporation. It had, for example, recently completed a successful change management program, focused on encouraging broader adaptation of an entrepreneurial mindset, with Siemens Nixdorf (soon to be Fujitsu-Siemens). Here Babson had both conceptualized and operationalized an opportunity focused approach to program instruction (Dover, 2003). Participants had worked on new product or process ideas within the real-time of the program schedule.

¹ Babson has been ranked as #1 in the world for the teaching and study of entrepreneurship at the undergraduate and MBA levels for the past 10 years.

Unfortunately, the concept of customized executive programs is more honored in the breach than in the observance. Often so-called tailored programs result only in cosmetic attempts at customization with the use of considerable off-the-shelf materials, the engagement of underprepared faculty, and little emphasis on company specific problems. Babson has always taken the idea of “customer intimacy” very seriously, spending considerable time and resources pre-program to acquire a deep knowledge of a firm’s commercial and cultural perspectives. This has led to long-term relationships with many clients and a current ranking of #6 in the world for customized executive education (*Financial Times*, 2008).

Recent research reveals that managers lose up to 85% of what they have learned in classroom settings within one month of course completion if there is not sufficient opportunity for practice and feedback (American Society for Training and Development, 2005). The goals of Infineon – to provide business acumen to a population largely of engineers by having them, in part, identify and explore new commercial opportunities for the company – lent themselves ideally to the application of action-based learning in high ego-involvement, real-world settings.

Designing the Global Manager Development Program

At this early stage, two important objectives needed to be attained. The first was to ensure that the complexity of the semiconductor industry was fully appreciated and, as a consequence, that program content was sensitive to this overarching environmental context. The second was for Babson faculty to gain credibility with senior Infineon personnel in order for a “dialogue of equals” to be pursued. For any long-term partnership to succeed each must show confidence in the other. Methods for achieving these aims included:

- Two faculty directors were appointed to the program. They were selected because of their interest and experience in the industry, the relevance of their subject knowledge (Strategy, Finance, Marketing), and the respect in which they were held as consummate executive education professionals.
- The formation of a program design team comprising Babson faculty, HR/LD personnel and senior line managers at Infineon. This ensured early “buy-in” from key constituents of the program. Note that this team was not just a “rubber stamp” but an active, collaborative unit, meeting frequently both face-to-face and virtually.
- The interviewing of almost all senior Infineon personnel by the two GMD Faculty Directors. This was done, on-site, to fully understand the challenges facing the

company and to establish perceived priorities for learning coverage. Babson invested in more than 20 days of development to initially devise this program. Many clients balk at such expenditure, only feeling comfortable paying for time actually spent in the classroom. In this case, the academic partners felt strongly that diligent pre-program work helped clarify the needs-assessment process, suitably de-limited the program parameters, and created realistic expectations for all constituents. Moreover, heavy up-front investment can be amortized over the lifetime of a program, as long as the program is replicated a significant number of times (e.g., we are now completing our 15th iteration of GMD).

- The design team and selected others (e.g., interviewees who had shown particularly insightful ideas) were invited to give constructive feedback on a number of draft program outlines.

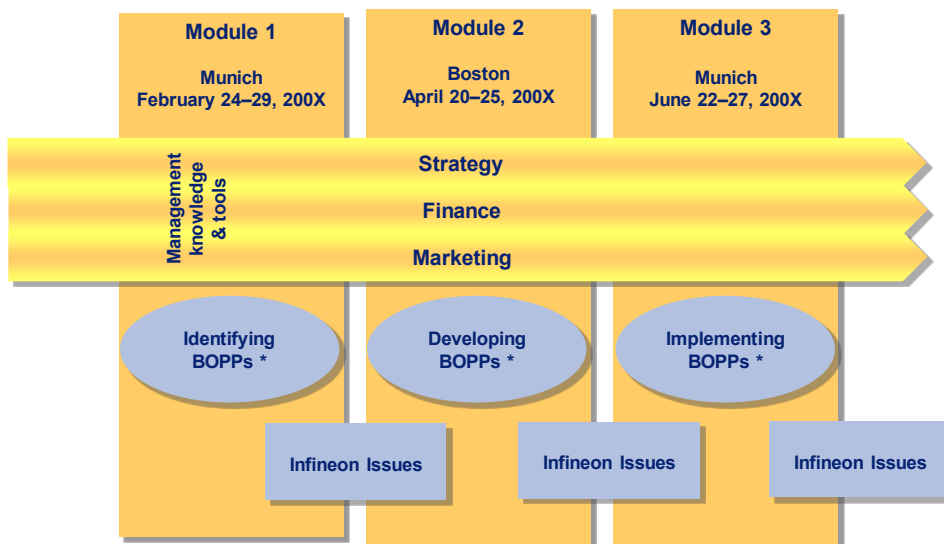
What then were the results of these deliberations?

Initial Program Content

Given the goals of developing an entrepreneurially-oriented program that provides technical specialists (largely engineers) with general business skills – all within the complex world of the semiconductor industry – the major building blocks of the program emerged as follows:

The principle conceptual framework revolved around the entrepreneurial continuum of opportunity identification → opportunity assessment → opportunity development → opportunity delivery/capture. The original design is shown below:

Global Manager Development Program Program Outline



Global Manager Development Program / Babson College / Mod 1, 2008/02/24

* Business Opportunities

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The program was designed for Infineon High Potentials who were expected, over the next few years, to assume top management tasks within the corporation. The program comprised three one-week face-to-face modules delivered over an approximately six-month period. Each week covered the management knowledge and tools required to appreciate the stages of the entrepreneurial process. Module 1 dealt with the strategic market analysis and financial tools required to identify and evaluate a new business opportunity. Module 2 turned to developing a market strategy for this new opportunity as well as answering the question “can we be profitable?” The final module concentrated on effective strategy implementation, focusing mainly on market entry programs and the subsequent management of the product life cycle.

Two types of group projects were created. The first (Business Opportunity Projects – BOPPs) offered a current, company specific case on which the conceptual tools introduced in the modules could be applied. A BOPP sought to rigorously strategically and financially assess emerging business opportunities within Infineon. Such opportunities resulted from in-company technology development or customer need assessment. An early example examined the commercial potential of a new eAuthentication technology designed to protect consumable goods (e.g., ink cartridges and toners) against counterfeits. These resultant projects were conducted during the face-to-face sessions either through class break-outs or by teams working at night,

allowing real time applications of classroom concepts. The choice of such action-based learning procedures was informed by a growing appreciation of the learning requirements of adults. Adult learning theory (e.g., Conger and Toegel, 2003) reveals that adults are most motivated for learning when it is immediately relevant to their lives. Similarly, learning involves cycles of action and reflection, implying the importance of experience to the learning process. Consequently, both the immediacy and the longitudinal nature of the projects were felt to maximize learning potential in the classroom as well as in more informal face-to-face and virtual discussions.

The second type of project – Infineon Issues – operated at a broader, more corporate level. Conducted for the most part virtually between face-to-face sessions, it challenged teams of international participants to reflect and advise on major policy issues facing the company. The Issues were selected by Board members and represented concerns felt at the highest level of the organization (e.g., development of an IP strategy with special focus on IP partnerships). On completion, each Issue was presented to the full Management Board and the recommendations considered for corporate adoption.

In summary, the program design was a joint undertaking where Babson contributed the conceptual framework and relevant materials for application of the entrepreneurial process and Infineon the contextual elements in the form of suitable BOPPs and significant macro-Issues.

Program Delivery – the Early Days

The first GMD program ran in early 2002 and we are now about to complete its 15th running. Much has changed through continuous quality improvement, while much has remained the same. We will look at the latter in this section, and turn to the former in the next:

The program benefits enormously from the regular participation of senior managers, including Board members. For example, participant motivation is greatly enhanced by the attendance of either the CEO or other Board members at the evaluation of business opportunity presentations at the end of the first module of the program. A very Socratic setting is encouraged – not common in German companies! – where a healthy dialogue can flourish in a “safe” environment. Similarly, senior managers are continuously available to present on-going issues of importance (e.g., the evolution of the corporate and Business Unit strategies) as well as special topics that emerge from time-to-time (e.g., the growing importance of solutions management; the need for corporate governance and business conduct guidelines).

The program has also gained by the invitation of non-Infineon personnel to give an external perspective on the changing competitive environment. For example, during Module 1 a major customer is asked to reflect on industry trends and then comment on how well Infineon meets their needs in comparison to other key competitors. This can be a salutary experience for program participants who are often surprised (and sometimes shocked!) from this outside-in, “view from the field.” Similarly, while at Babson during Module 2, a successful high technology entrepreneur is invited to explain the challenges and secrets of effective new product development and commercialization. A particularly popular visitor has been the owner and founder of Ice Flows Inc, a start-up using semiconductor technology to break down accumulated ice on structures ranging from bridges to skis.

Infineon provides a steady flow of information about the company and its markets to the Babson faculty team. This covers a wide variety of topics – strategies, processes, structure, culture, etc. – and allows in-class presentation materials to contain current Infineon philosophies and practices. For example, a generic discussion on strategy formulation can include a section from the Strategy Bluebook, a set of company guidelines on the strategy process. In the same way, a lecture on pricing methodologies is given resonance by the availability of an Infineon model on value-based pricing. As can be seen from these points, Infineon senior management continue to invest significant time and effort in program support, despite persistently facing very challenging market conditions.

We have been able to retain a largely unchanged faculty over the six year course of the program. This has brought a number of benefits:

- A faculty with considerable company and industry knowledge, resulting in the attainment of significant credibility with both program participants and HR/LD personnel
- This leads to a trusted partner relationship where Babson is seen – within the areas bounded by the program – as an integral part of the Infineon “knowledge production” team
- Access to very senior management who now view the Babson team as a resource that is not confined to the classroom. For instance, when the company recently changed a guiding principle “from customer oriented to customer embedded,” a Babson faculty member ran a workshop for the senior management team on better understanding customer touch-points.

Program Delivery – Continuous Improvement

The dynamics of this industry has also led to many changes in program design requiring continual IP investment by both parties. These included:

China has emerged as a key player in the semiconductor industry with the Chinese government identifying it as a strategic priority for investment. As a result, it was decided to situate Week 3 in Shanghai. Consequently, the coverage for that week was radically changed. It was argued that if added cost and inconvenience were to be incurred then it made sense to take full advantage of the local environment. Although many of the participants had been to China on work-related business their visits were often narrow in context – to qualify a subcontractor, to oversee a technology transfer to a local design center, and the like.

The Week 3 curriculum sought to expand participants' knowledge of the emerging Chinese juggernaut. It is worth giving a flavor for some of the new content. Added were government visits where, for instance, the economic minister of Pudong would give a lecture on the historic development of this commercial area and, more importantly, their future expansionary plans. A visit to SMIC, a large production subcontractor that Infineon partners with in Shanghai, ended with the COO giving a talk on the relative economics of running semiconductor manufacturing in China and Europe. He was quite open with his cost figures – and his estimates for Infineon – and concluded with a simple statement that “You cannot compete with me on manufacturing.” He then talked about the importance of continued technology cooperation between the two companies.

Local customers were also brought into the classroom. A Chinese manager from East Comm, a regional mobile phone company, gave a clear evaluation of Infineon as a supplier and what his expectations would be for the future. He also gave a cultural perspective on the importance of his company doing business with local suppliers, subtly suggesting the need for Infineon to partner more with domestic players.

One final example – a case study was developed in the classroom on a real-time product roll-out that Infineon China was undertaking. The marketing manager for this project gave a brief overview of the target market, the competitor landscape, and the product attributes for the Infineon entry, challenging the participant groups to develop imaginative and sensitive marketing implementation plans. Opportunity exploitation was brought to life by dealing with a real product introduction in a real (and, for most, different) market setting.

As Infineon moved into ever-more complex technologies and new markets, the standard capital investment techniques such as NPV analysis, which assume basic and relatively stable market experiences, had to be augmented. New financial tool coverage such as

Risk Analysis and Option Modeling – which deal with highly uncertain investment environments – were added to Week 2. Moreover, “hot topics” floated in and out of the program. For two or three years, a move way from product and service sales to solution selling was seen as a major opportunity for the company. This idea began to wane with the realization that Infineon, a component manufacturer at the left hand edge of the customer value chain, was infrequently in the position to be the strongest player in adding value to the end product (e.g., a cell phone; an automobile braking system). The GMD program provided a discussion forum for these new ideas and provided helpful input into the senior management decision process.

A new CEO, Dr. Wolfgang Ziebart, was appointed in 2005². His first move was to unequivocally identify four key factors for future success – profitable growth, customer focus, operational excellence and collaborative leadership. Fortunately, these concepts were largely aligned with the content of the program which therefore required no substantive changes. The program actually served as a vehicle to address the logic of these key elements with Ziebart becoming a strong supporter of, and a regular speaker at, the program.

In 2006 the memory group was spun-out as a separate company. The GMD class was now solely for logic personnel and the content and delivery of the program had to be appropriately adjusted. This had two major effects. Having a more homogeneous group allowed the selection of more specific materials and a deeper discussion of the challenges of the logic sector (e.g., the emphasis shifted from marketing and selling commodity products towards the development and commercialization of added-value components). On the other hand, we feared that this same homogeneity may make it more difficult to evaluate different strategic and operational approaches to this market in a detached and unbiased manner. This turned out to be largely unfounded as the presence of participants from around the globe ensured a diversity of viewpoint that outweighed the similarities imposed by a limited range of technologies.

One very positive change was that alumni began to invest intellectually in the program. They identified subordinates for future cohorts and developed and mentored BOPPs for in-class analysis. It became increasingly clear within the Business Groups and Business Units that the more consistent their approach to the search for viable – that is, profitable – growth opportunities, the more effective the likely outcome. Past participants were aware of the type of information required to assess an opportunity (market, competitor, costs, etc) and were generally able to avoid the pursuit of chimeric projects. Many of

² Dr. Ziebart resigned his position as CEO and President of Infineon Technologies at the end of May, 2008.

the BUs had attained a critical mass of program graduates so they too became part of the partnership.

Measuring Program Success

Management development clients are increasingly demanding more effective, efficient, actionable and communicable program outcomes for their executives. Over the past 10 years or so, companies have changed their philosophy towards executive education quite considerably. A decade ago, many programs comprised an “executive reward” where experience was as important as content. Now they are seen as “real-time investments” where highly contextualized materials are often accompanied by action-based learning (Dover, 2007). Indeed, there has been a recent marked increase in interest in evaluating the return on investment from executive programs, although considerable variance still remains in identifying appropriate metrics (e.g., Ashridge/UNICON ROI Study, 2006). Infineon and Babson have devised a number of ways to assess the GMD program impact. These include the following:

Participant Retention: a critical consideration for any company is not only the education of their key employees but their productive retention within the organization. This is particularly true in a volatile industry like semiconductors where promising talent is scarce and the opportunity for job mobility high. Of the 404 “high potentials” that have participated in the first fourteen programs, 348 (85.14%) remain with the company. This is a high retention figure and reinforces Infineon’s objective to “signal to our best employees that they are essential for Infineon’s success.”

BOPP Outcomes: To date 56 business opportunities have been evaluated by program participants. Of the projects assessed during Module 1 – involving rigorous market and financial analysis, aimed at answering the questions “is there a market for this product/service?” and “can Infineon win in this market?” -- almost 70% were found to be worthy of further Infineon attention. These remaining initiatives were further explored during Module 2 of the program where detailed strategic and financial analysis offered insight into market selection and positioning as well as guidance on how to profitably commercialize the new product. About 85% of these projects have now been successfully introduced to the market (that is, meeting Year 1 goals) with a small number providing “blockbuster” accomplishment (e.g., a tire pressure monitoring system; a unique e-passport methodology, adopted – among others – by the US government). Of course, much more planning work by business group personnel followed the endeavors of the GMD teams but the rigorous analysis and imaginative ideas generated by the program participants acted as a vital stimulus to the aggressive

pursuit of potentially exciting opportunities. In a number of cases, GMD participants were seconded to the development team tasked to bring the new product to market.

It is worth reiterating that more and more BOPPs are originated by GMD alumni who are familiar with the evaluation process and are less likely to bring “nice technology, no market” products for consideration, a major problem in earlier programs.

IFX Issues: As with the BOPPs, 56 IFX Issues projects have been completed. Clearly some have had more impact on the company than others but all are felt to have had a helpful effect. Remember, these assignments are determined by Board members and presented to the whole Board at the conclusion of the project. The current CEO, Dr. Wolfgang Ziebart, noted in a recent meeting that “the IFX Issues really make a difference to our company” and singled out reports on *Optimizing Mergers and Acquisition Processes* and *Determining IP Strategy* as having a particularly strong positive influence.

Participant Progress: A key measure of longer term program impact is the progression made by participants into senior managerial positions within the company. Although Infineon chose not to give specific details on this measure, they note that overall program attendees progress much more quickly. This is attributed, in large part, to careful selection, but their ability to apply customized management tools and techniques, an expanded network of international contacts, and better access to top management have also influenced their success.

Interestingly, Infineon does not try to formally measure feedback from the program over time (e.g., checking after 12 months whether participants are still using the tools and techniques from the program). This has been discussed but there is a belief that the “proof of the pudding” rests in actual results. That is, as past participants grow into key positions they will become the guardians of implementing appropriate tools and techniques. Anecdotal evidence suggests that this is the case as there is a widespread sense that the Babson program has provided a common business vocabulary for a predominantly engineering company.

Updating Knowledge: Clearly, in any longitudinal program a major challenge rests in keeping past participants informed of emerging trends in business practice that may impact their activities. We discussed the dynamic nature of the program in the previous section where new tools and techniques are introduced to strengthen and update content. For instance, a session on Corporate Identity was developed when Infineon adjusted its mission and revised its corporate values. Two other ways of retaining GMD as a vibrant entity have been:

- Creation of a GMD website containing program details, new and interesting articles, video clips from recent programs, and news on the activities and progression of program alumni
- Alumni meetings in which past participants can network, share experiences and be involved in a discussion on a current business “hot topic.” A recent event in Munich drew 160 attendees to a lively debate, moderated by Babson faculty, on Strategy Implementation.

Note that these on-going activities deepen the trusted partnership between Babson faculty and HR/LD, senior management and program alumni at Infineon.

Lessons Learned

Most of the lessons learned, and values realized, from the on-going running of GMD apply to both partners, Infineon and Babson. Moreover, these lessons appear to be transferable to other customized program clients and to other executive education providers. They include:

Top management commitment is critical to the success of the program. Both CEO’s in office since the inception of the program – along with most other Board members -- have been actively and enthusiastically involved, bringing GMD considerable credence and internal visibility. Moreover, senior management presence has focused the attention of program participants by making the latter aware of the personal and institutional significance of this learning opportunity.

The continuity of the faculty greatly increases program credibility. Employing a largely unchanged faculty allows their industry and company knowledge to continuously improve with the result that program enhancements are made from a deepening understanding of contextual applications to the complex challenges of the semiconductor industry. It is important to note that “customer intimacy” is as important after 15 iterations of GMD as it was at the outset of the program.

Similarly, the roles of Faculty Director (Babson) and Program Director (Infineon) are pivotal for partnership harmony. Their careful selection is critical as they act as the point of contact for their institutions in maintaining the integrity and flexibility of the program.

Encouraging involvement from program alumni also has beneficial effects. It provides a positive reference source within the company, an ear-to-the-ground for shifting trends in the organization and the industry, assists in participant and project selection as well as

the supply of relevant company materials (e.g., useful case studies; new process documents).

Immersing participants in local business environments greatly broadens participant perspectives. By running the program in Germany, USA and China – and occasionally taking students out of the classroom and into the marketplace (such as meeting entrepreneurs in the US, government officials in China) – the opportunities and challenges of working within a global corporation are much better appreciated.

Ensuring that a Global program has a multinational mix of participants. The early programs contained an overwhelming number of Germans managers to the point where it became laughingly known as the “German Management Development” program. Fortunately, this was quickly corrected and more recent programs have a healthy, eclectic mix of nationalities. This greatly improves networking, allows multi-national teams to work on projects, improves cross-cultural sensitivity and reduces the Munich-centricity evident at the commencement of the program.

It is essential to continuously upgrade and update program parameters and materials. Hence, the development team that originally forged the program – comprising both Babson and Infineon personnel – has never been disbanded. They meet, generally virtually, both before and after each program to review content and process with a view to incorporating relevant new ideas from the applied world of academe and from inside Infineon.

Two final benefits are worth recording, one principally for Infineon and one for Babson. Over the six months or so that the program lasts, participants are classified as Babson students. This allows them to use Babson facilities, including a distance learning platform (Blackboard) and on-line library resources. This has resulted in an interesting and somewhat unexpected outcome. A major challenge for any executive program is to encourage participants to take time to be reflective, to get off the frenetic roller-coaster that is their daily operational life. Having teams undertake substantive projects while providing them access to materials that can take them beyond their day-to-day confines has led to an encouraging amount of electronic resource usage and a heightened level of constructive questioning and intellectual curiosity. Such a willingness to broaden their horizons augers well for the future leadership of the company as undoubtedly one of the greatest impediments facing executive educators is the obsessive tendency of current managers to take a myopic, inward looking view of his/her business world (often referred to as “navel gazing!”)

The benefit to Babson has been more immediately tangible. The corporate entrepreneurship model built for Infineon is highly replicable and has been used with a

number of other clients in associated industries. It fits well into Babson's entrepreneurial DNA and provides a powerful positioning statement for use with potential executive education clients. It also presents an excellent platform for applied research (e.g., Cohen, 2002; Thornberry, 2006). Moreover, it translates well into the MBA classroom where action-based learning based on the entrepreneurial mindset has become an integral component of this applied program.

Where Now?

The GMD program provides an outstanding example of successful collaboration between a company and an executive education provider. It has underlined the importance of matching strong conceptual business frameworks with their instant application through action-based learning projects of considerable company significance. Like any good strategy, it has evolved and improved over time. It represents a trusted partnership in a business climate where substantial competitive challenges remain a constant. Its continued success depends on retaining relevance in this hostile environment. Flexibility and continuous improvement are the essence of customized education and we hope that the lessons learned over the first six years of the GMD program will allow it to continue to build capabilities among high potential employees for the foreseeable future.

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