



Outsourcing of Cutting-Edge Technologies

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Created by B. Calimez, PMP
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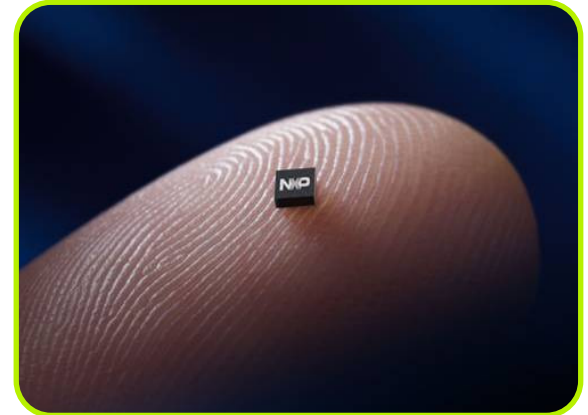
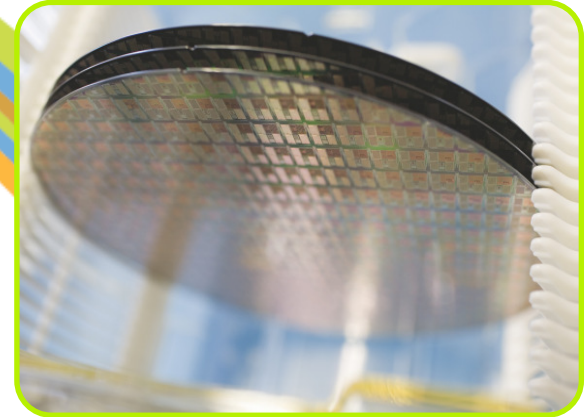


Agenda

- ▶ Introduction
- ▶ Make or Buy? A Managerial Decision
- ▶ Setup:
 - Business Model
 - Partner Selection
 - Duties of each Party
- ▶ Execution & project management
- ▶ Risk & Opportunities
- ▶ Intellectual Property
- ▶ Get your People on Board
- ▶ Social Responsibility
- ▶ Summary

NXP Semiconductors

- ▶ **President & CEO:** Rick Clemmer
- ▶ **Headquarters:** Eindhoven, The Netherlands
- ▶ **Net sales:** \$4.6 billion in 2008
- ▶ Established in 2006 (formerly a division of Philips)
 - Fully owned by Private Equity Consortium (Kohlberg Kravis Roberts (KKR), Silver Lake Partners, Alpinvest, Bain Capital and Apax Partners) and Koninklijke Philips Electronics (19.9%)
- ▶ 50+ years of experience in semiconductors
- ▶ **Businesses:**
 - Automotive
 - Identification
 - Home
 - Multi-market Semiconductors



Keynote Speaker

▶ Benoît Calimez,

- Engineer ISEP, promotion 94
- Certified PMP (Project Management Institute)
- 12 years of experience in project and program management (including 4 years as Project Management Officer)
- Chairman of the Hammonia forum
 - Local in Hamburg, cross all NXP business organizations
- As per today:
 - Program Manager Multimedia
 - NXP Semiconductors Germany GmbH
 - BL Car Entertainment Solutions
 - Program scope:
 - Multimedia
 - Connectivity
 - Storage
- Contacts:
 - +49 160 470 9852
 - mailto: benoit.calimez@nxp.com
 - Linked In



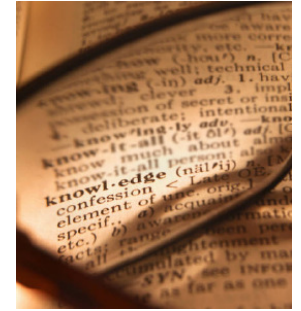
Introduction



- ▶ Western companies (Europe, US) are outsourcing activities or services to other companies for years already, often located in low wage countries:
 - E.g. migration of call centers to India or north Africa
- ▶ Why?
 - Round the clock services
 - Economy of scale
 - Lower wage/tariff
 - In most of the cases, it seems to relate to labor/cost reasons
- ▶ A trend which is now pretty well accepted by companies and by final customers
- ▶ What if the next wave of outsourcing relates to more sensitive activities, to cutting-edge technologies?
 - E.g. medical image analysis can be outsourced to India
 - E.g. legal services (Cf. *Le Monde*, 3rd of April'09 “Invest in an Indian lawyer”)
- ▶ Is this a concern with respect to ethic? Social responsibility?
- ▶ Is this an indicator of the level of education/expertise around the globe?
 - What was a core competence yesterday may become a commodity today or tomorrow



Glossary & Definition



- ▶ Outsourcing versus Subcontracting :
 - Outsourcing is subcontracting a process, such as product design or manufacturing, to a third-party company
 - It involves the transfer of the management and/or day-to-day execution of an entire business function to an external service provider
 - In a nutshell, **Outsourcing = Subcontracting**
 - Outsourcing became part of the business lexicon during the 1980s

- ▶ Outsourcing versus Offshoring:
 - Outsourcing involves contracting with a supplier, which may or may not involve some degree of offshoring
 - Offshoring is the transfer of an organizational function to another country, regardless of whether the work is outsourced or stays within the same corporation/company

Once Upon a Time... ... A Two-Headed Chip



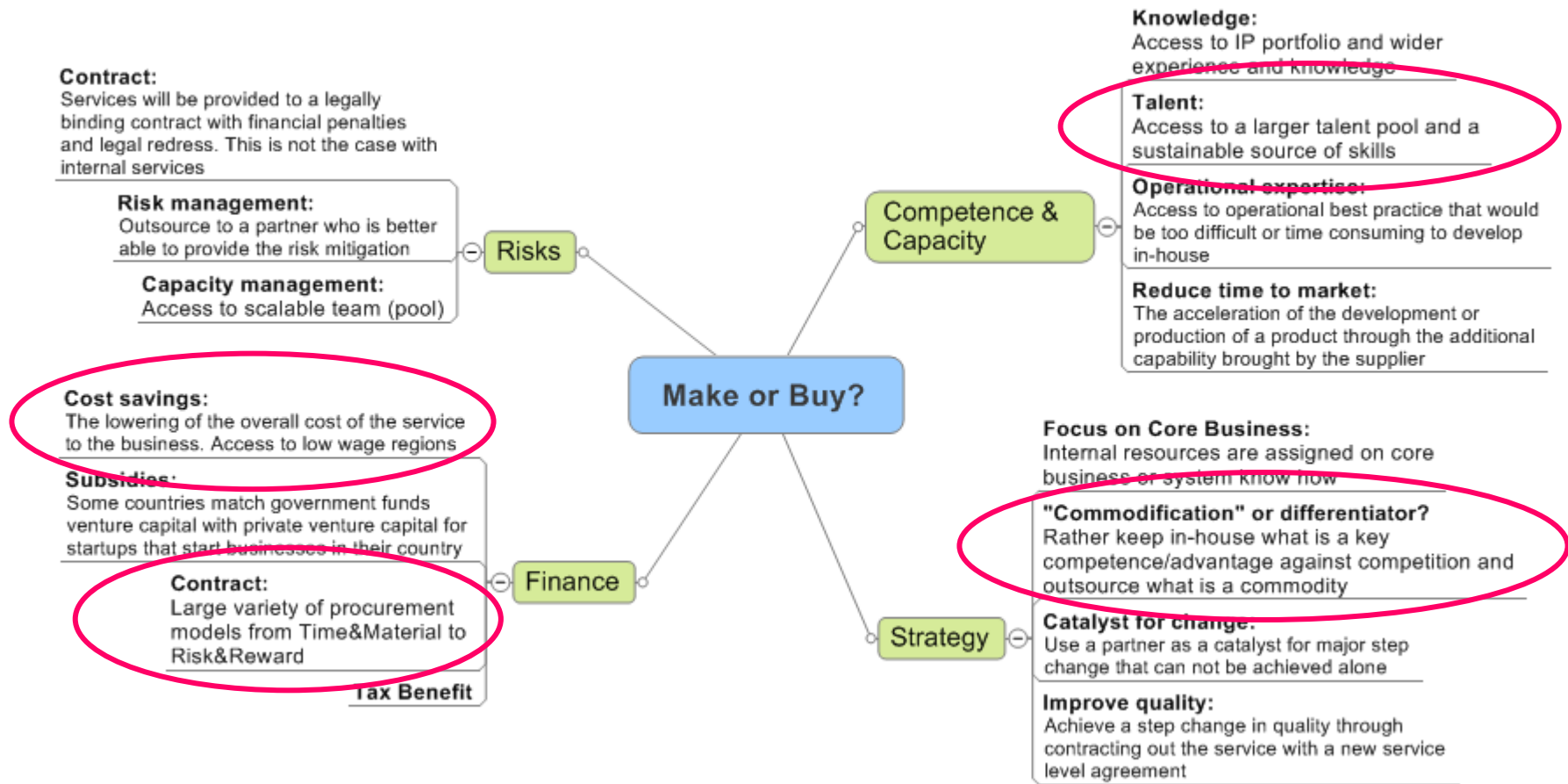
Hammonia Forum



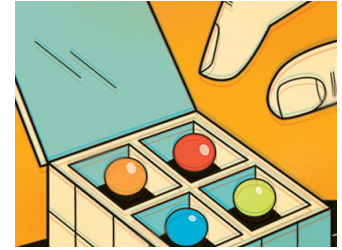


Make or Buy? Decision Criteria

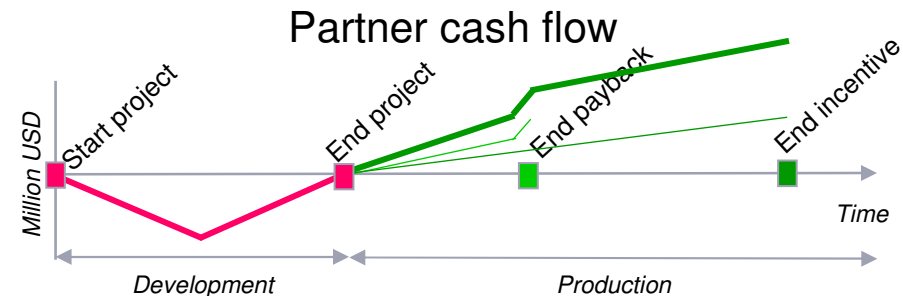
- ▶ The most significant decision is whether to outsource the function or perform it in-house
 - The decision to outsource is made at a strategic level



Chose the Business Model Carefully



- ▶ A full portfolio of contracts and business models is available for performing procurement
 - From *Time & Material* type of contract, till *Risk & Reward*
- ▶ In our case, the radical business model has been **the enabler of the project**
 - The budget constraints made the project unaffordable within NXP
 - The gross margin on the targeted markets was compatible with a royalty scheme to finance the partner
 - A **Risk & Reward model** has been selected with a double royalty scheme
 - No up-front investments for NXP (for the service performed by the partner)
 - Pay back of the development costs (~2/3) via short term royalties (% of the revenue)
 - NXP had a due amount, at a due date (if not via sales, then cash)
 - Incentives via long term royalties
 - Until a certain dead line
- ▶ Outsourcing becomes part of **the corporate toolkit**
 - Our partner has funded the project



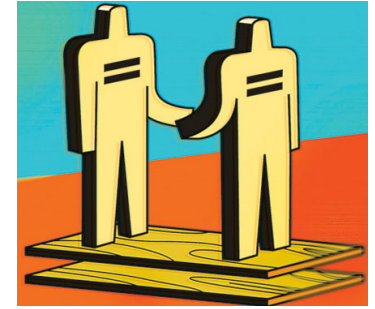
Select the Right Partner



- ▶ There are many design-houses around the globe; how to select?
- ▶ Define a **list of selection criteria** and weight them according to priorities
 - In-house competences (of the partner)
 - Business and cost model
 - Management engagement
 - Credibility (track record)
 - Sustainability of the company (size, financial & labor turnover, financial stability)
 - Foot-print: local, global
 - Project management culture
 - Processes and tools in place
 - Type of reporting
 - Education of the PMs
 - Quality standard: ISO, TS, CMMi, etc
 - Recommendations
- ▶ Define a **systematic/structured selection approach**
 - E.g. Use of Partner tracker (see Annex-1)
 - Bring transparency to be able to defend the selection
- ▶ Always go for a **face to face meeting**
 - Involving multiple disciplines
 - Gut feeling is also important
- ▶ Jointly agree about **long-term objectives**



Duties of each party

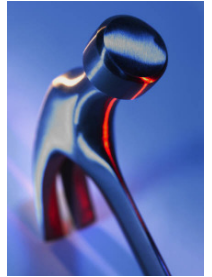


- ▶ A professional relationship:
 - Outsourcing is not a master-slave relation ship:
 - **Regard the suppliers as equals**, especially in cutting-edge technology domain
 - *"If you try to treat these suppliers as a body shop, telling them exactly what to do and how to do it, it does not go well"*
 - Operating principles:
 - Presume trust, have candid dialogues, be open minded & genuine
 - Integrity, respect and honesty
 - **Take into account cultural differences**

- ▶ Our duties
 - Trainings and knowledge access
 - Documentation availability
 - Keep the **System ownership**
 - Overall **accountability** towards the customer
- ▶ The supplier/partner duties
 - Periodic status meeting and reports
 - Incident reports
 - Project coordinator
 - Right technical skills
 - Keep liability for its deliveries (e.g. warranty)

Write down
& verify the
assumptions
of both parties

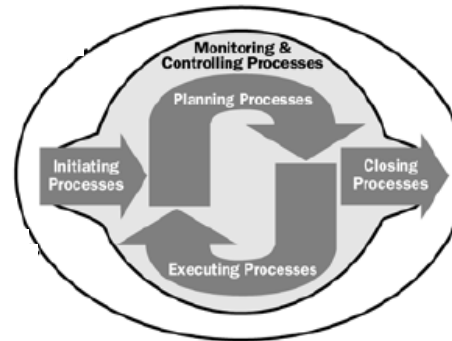
To be clearly described
in a contract (SoW)



Execution & Project Management (1)

- ▶ More than ever, all state-of-the-art **project management tools** must be applied through the complete life-cycle of the project:

1. Initiating
2. Planning
3. Executing
4. Monitoring & controlling
5. Closing



- ▶ The key project management processes:
 - Agreement on the **scope of the project**
 - Definition of an escalation path + nominate a steering committee
 - Definition of exception limits (budget, schedule)
 - Proper **requirement management**
 - Supported by configuration management
 - V model (top-down description of the requirements and bottom-up definition of the compliance tests)

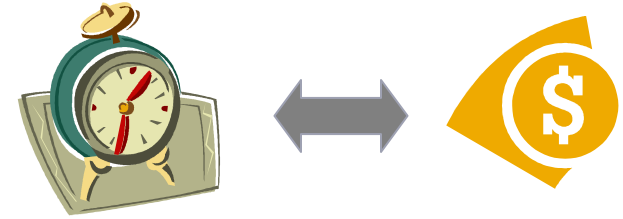
Execution & Project Management (2)

- ▶ The key project management processes (cont’):
 - Project **time** and **cost management**
 - Estimation of project duration and budget
 - Strict application of **change management**
 - Setup of a CCB (Change Control Board)
 - Use of CR (Change Request) and PR (Problem Report)
 - Obviously a proper **procurement management**
 - Contract covering all these processes including legal and liability aspects
 - A thorough **risk management**
 - Assessing and mitigating both opportunities and negative risks
 - A clever **communication management**
 - Keep all stakeholders informed
 - A pragmatic **quality management**
 - Including assurance and control (e.g. audit, review)
 - A human **resource management**
 - Team building taking into account project context and required competencies
 - Success celebration



*“A military discipline”
“Only the paranoid will survive”*

Risk & Opportunities



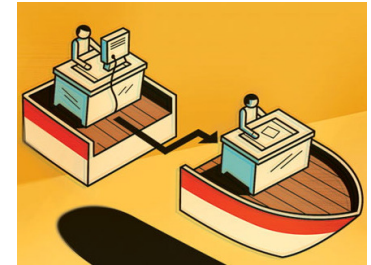
- ▶ In the automotive OEM market, the qualification of the car equipment is a long process:
 - When NXP releases a product year N, it goes into the car model year N+1
 - There is a lead-time between the end of our projects and the 1st sales
 - This would have been a financial concern for our partner
 - Since this project was co-sponsored within NXP and serving both Automotive and Consumer markets, we were in a position to generate revenue almost at the end of the development project
 - What was appearing as high complex setup, turned out to be an **opportunity**
- ▶ The Risk taken becomes **a financial factor** (e.g Risk & Reward)
- ▶ **Controlling/monitoring** is a major risk in outsourcing
 - Loss of control by ignoring the risks (blind trust on partner)
 - Late surprises by none reported incident
 - Loss of efficiency/momentum by overwhelming control of the partner
 - Risk of macro management

Intellectual Property



- ▶ Outsourcing is not about dealing with the devil but with a partner!
- ▶ It's mandatory to sign a NDA – **Non Disclosure Agreement**
 - As soon as possible, even during the selection process
 - All documents exchanged should contain “**Company Confidential**” statement
 - Preferably a specific NDA for the project, rather than a frame agreement at corporate level
- ▶ Protect the Intellectual Properties (IPs)
 - Apply patents for your own IPs
 - For all IPs coming out of the project, clarify who will be the IP owner
- ▶ **Confidentiality and Security**
 - Use encryption techniques for the most sensitive IPs
 - Hard coded IP iso netlist
 - Encrypted file when containing security information
 - Send encrypted files via FTP rather than E-mail attachments
 - Follow all licensing agreements - make sure that the partner has acquired the required license to handle the information provided
 - Make sure that the partner follow your security guideline and requirements (e.g. security zone)
 - Might require an audit

Get your people on board



- ▶ *"When you first approach outsourcing, it's a religious issue. People either believe in it or they don't."*
 - As project manager it's essential to keep communicating on the objectives of the outsourcing and the related background
 - It's also key to keep the two communities connected (incl. face to face meetings)
- ▶ Your own engineering community is your **best ally and your worst enemy**:
 - They might perceive the partner as competitor, as threat for their own position, for their future and behave accordingly (e.g. knowledge retention, over demands)
 - However their contribution is essential to define the requirements and to perform the entry inspections of the partner deliverables
- ▶ Creation of a **shadow team**
 - Experts in key competence domains have been assigned as counter part of the partner experts
 - Regular reviews and inspections
- ▶ Avoid the **conflict of experts**
 - Company and partner may have different experiences
 - Maintain the balance between in-house expertise and learning's from the partnership (insight)
 - Develop a Listen_Atitude rather than an Arrogant_Atitude



Social Responsibility

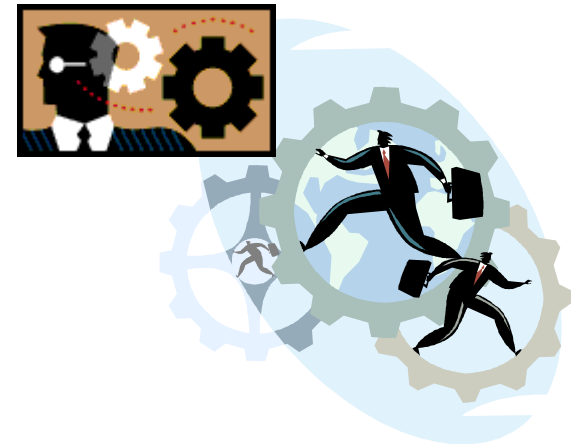


- ▶ Outsourcing is in most of the cases related to economic objectives:
 - It can be seen as transferring jobs to the lower-income regions of the world
- ▶ Outsourcing has a net **equalizing effect** on the overall distribution of wealth:
 - Some argue that the outsourcing of jobs exploits the lower paid workers
 - A contrary view is that more people are employed and benefit from a regular wage
- ▶ For the cutting-edge technologies, it may be perceived as unfair to the employees to outsource the work simply because the foreign pay rate is lower
 - On the other hand, one can argue that paying the higher-rate for local programmers is wasteful or simply overpayment
 - *"The issue is that if you don't do it, you won't survive."*
 - Yearly tariffs for high skilled labor (rough numbers):
 - US (280 kUSD), Europe (190 kUSD), China (90 kUSD), Singapore (70 kUSD), India (60 kUSD), Vietnam (10 kUSD)
- ▶ There is nothing automatically unethical about choosing the cheaper of two products, services or employees
- ▶ Point is to make better use of skilled local staff

Summary

*“Don't tell me how much I can save.
Show me how we can grow.”*

- ▶ Make a cautious decision to make or buy the service/product
 - For economic reasons
 - For better usage of skilled resources
 - For innovation
- ▶ Select the right partner with the right business model
- ▶ Make sure that fulfilling common goals and expectations
- ▶ Master the practices of project management
 - You cannot rely on your corporate culture
 - Hunt all assumptions
- ▶ Treat the partner in a professional manner
 - You only get out what you put in!
 - Take into account the cultural differences
- ▶ Handle with care the Intellectual Property
- ▶ Have fun and provide an attractive business to motivate your partner



References

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- ▶ <http://indiancallcenter.wordpress.com/category/social-responsibility/>
- ▶ <http://www.ventureoutsource.com/contract-manufacturing/benchmarks-best-practices/outsourcing-pitfalls/lowering-intellectual-property-ip-risk-when-outsourcing-ma>
- ▶ A guide to the Project Management Body of Knowledge (PMBOK® Guide) – Fourth Edition
– <http://www.pmi.org>



Your Questions, Please!



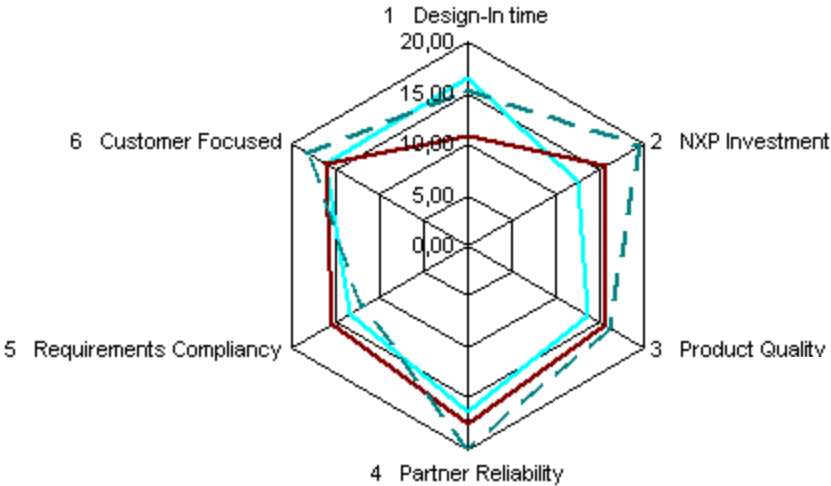
Annexes

Annex 1 – Partner Tracker

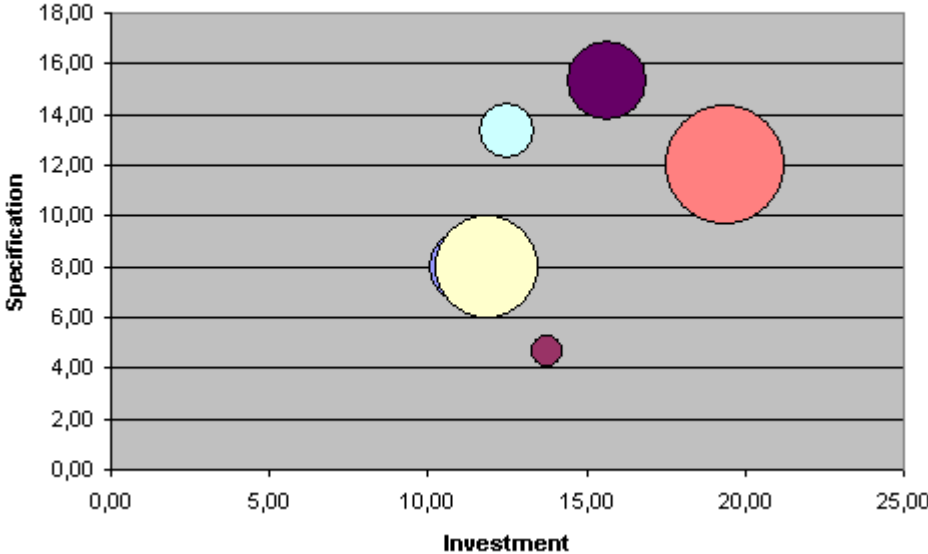
Partnership Progress Indicator >>>>	1st Presentation/Demo	NDA OK	Tech workshop done	MW Spec& Tech proposal	Tech proposal OK	SOW & BC received	SOW & BC appr. demo start	Demo OK	MOUs w/ customer signed	Detailed plans OK	Contracts OK	MW Functional	System Validated	System Customer accepted	Mass Production	Maintenance
	1	2	3	4	5	6	7 <i>PCA</i>	8	9	10 <i>S</i>	11	12 <i>A</i>	13 <i>V</i>	14 <i>R</i>	15	16
Partner 1	1	2	3	4	5	6										
Partner 2	1															
Partner3	1	2	3	4												



Annex 2 – Partner Selection Analysis

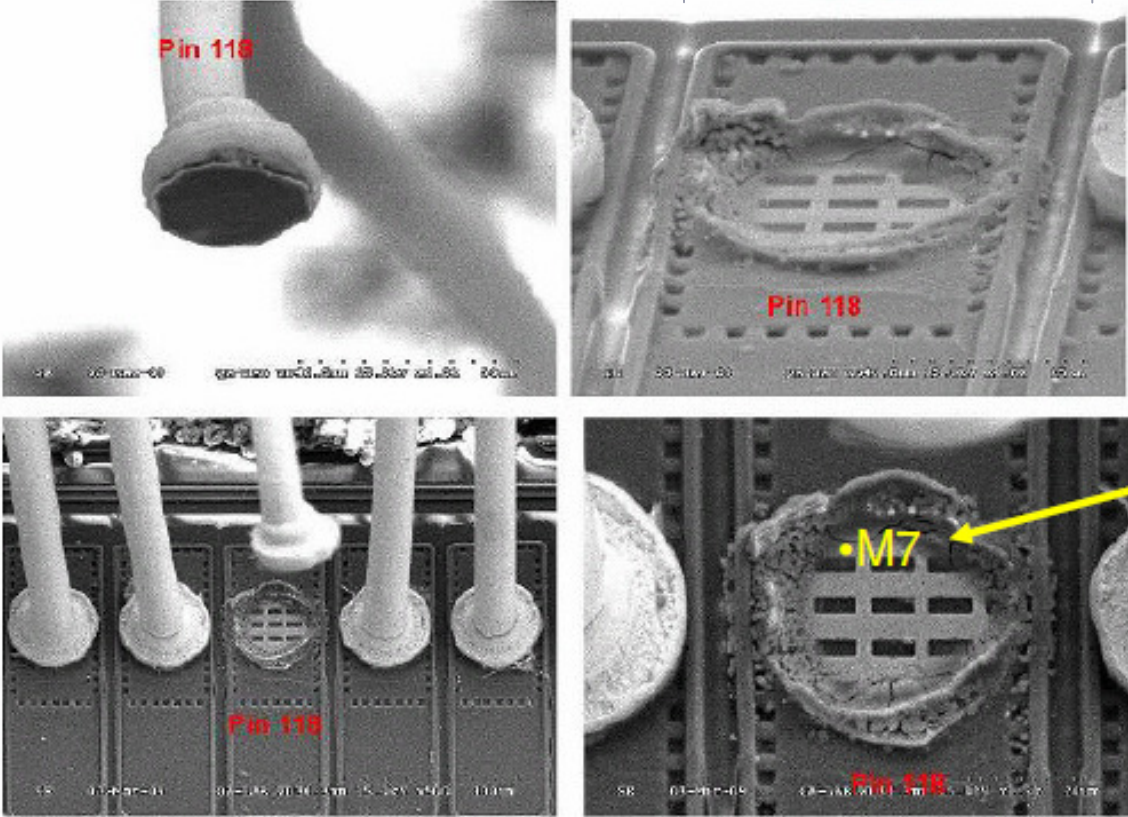


Investment versus Specifications



Annex 3 – A Deep Dive in Semicon

89 um = x 2 the dimension of a hair!



- Metal & Oxide loss
- (Below M7) due to de-cap
- chemical etching process.
- It means wire bonding crack
- extends below M7

