

EFMD & HUMANE ASIA-PACIFIC SCHOOL
MANAGING INTERNATIONAL STRATEGIC PARTNERSHIPS IN HIGHER EDUCATION



mtec

TALENT MANAGEMENT
IN AN INTERNATIONAL R&D ORGANIZATION

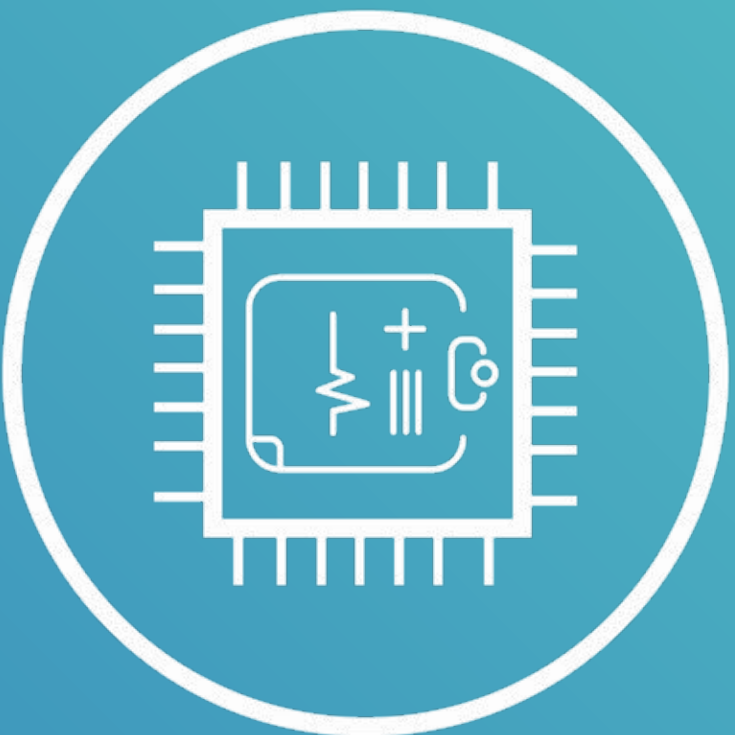
HUBERT DE NEVE, PHD

hubert.deneve@telenet.be

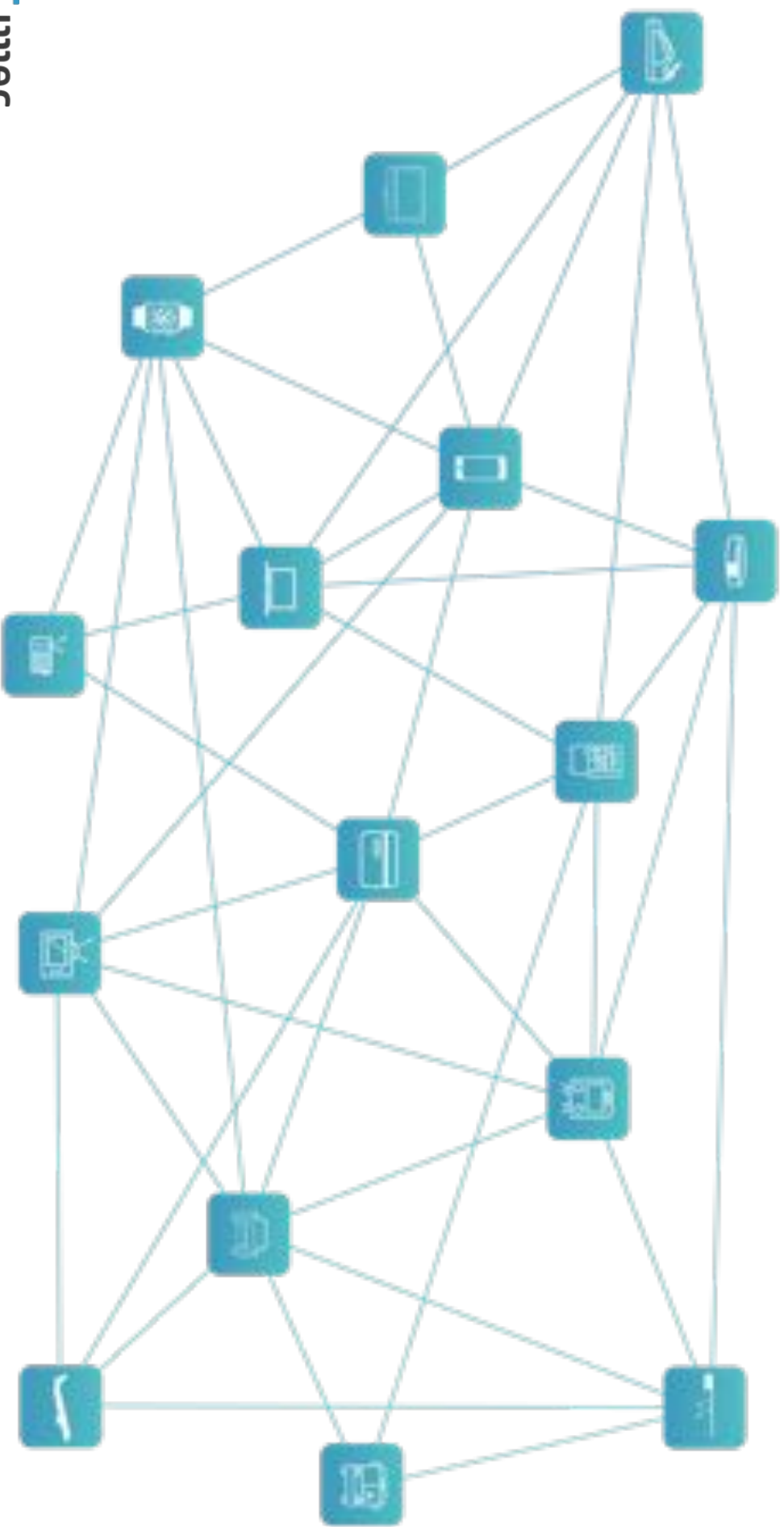
PUBLIC

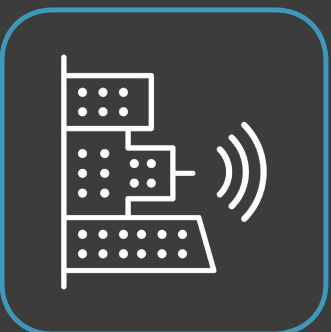
■
at imec, we shape the future





ENABLING THE INTUITIVE INTERNET OF THINGS





INNOVATION PLATFORM

APPLICATION DOMAINS

SMART HEALTH



SMART MOBILITY



SMART CITIES



SMART INDUSTRIES

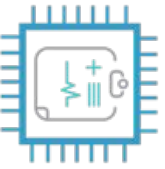


SMART ENERGY

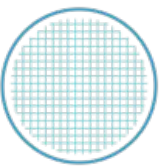


SEMICONDUCTOR & SYSTEM TECHNOLOGIES

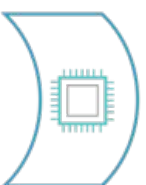
CORE
CMOS



SENSOR
TECHNOLOGY



FLEXIBLE
TECHNOLOGY



PATTERNING
TECHNOLOGY

LOGIC
TECHNOLOGY

MEMORY
TECHNOLOGY

INTERCONNECT
TECHNOLOGY

3D INTEGRATION
OPTICAL I/O

DIGITAL TECHNOLOGY PLATFORMS

NETWORKING



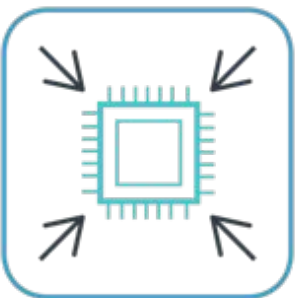
DIGITAL PRIVACY &
SECURITY



SOFTWARE & DATA
MANAGEMENT SKILLS







SMALLER

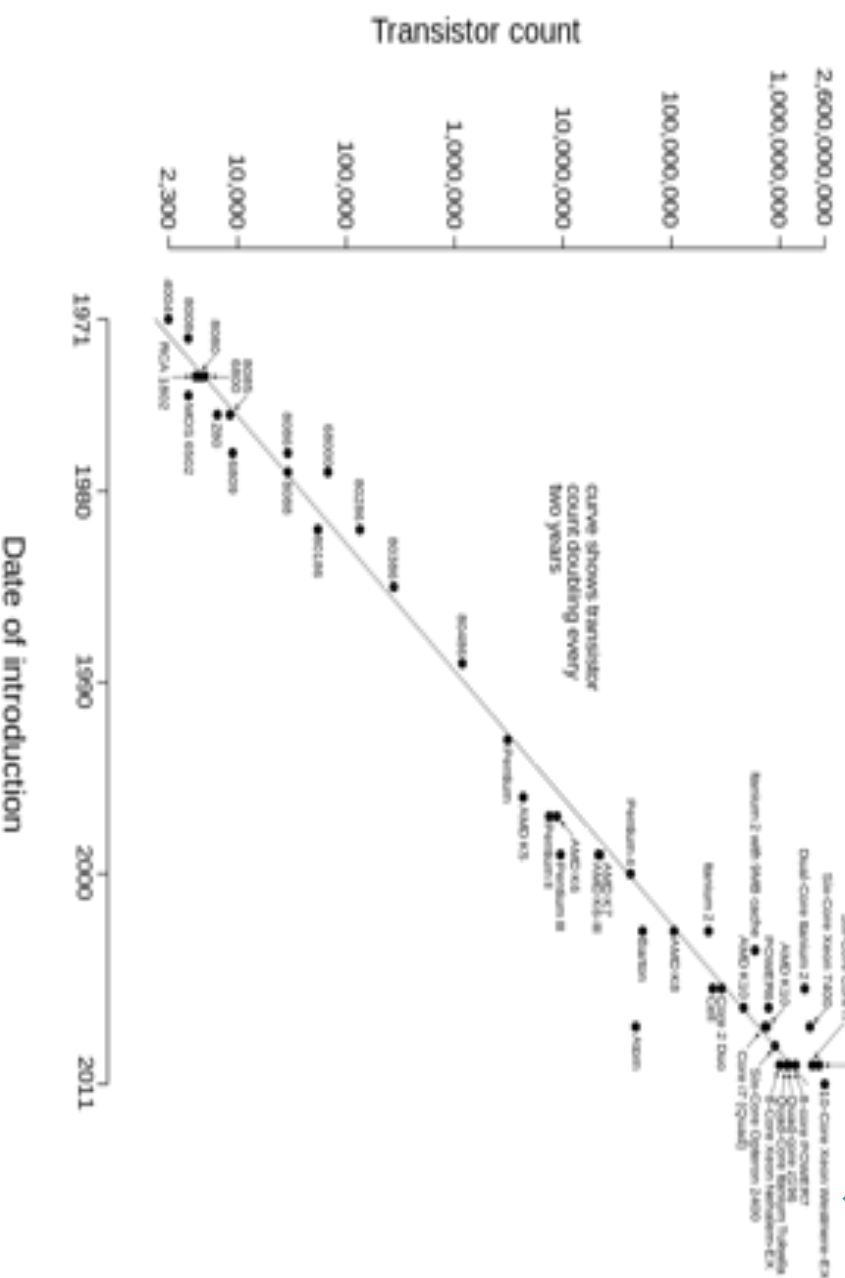
MORE

FASTER

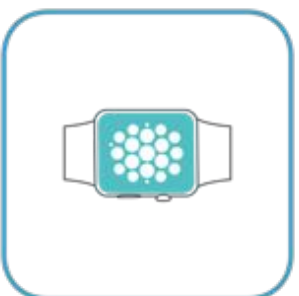
LESS POWER

MICRO-AND NANO-ELECTRONICS: SCALING

Microprocessor Transistor Counts 1971-2011 & Moore's Law



MICROCHIPS DRIVE THE SMART REVOLUTION



DRIVING THE SEMICONDUCTOR ROADMAP



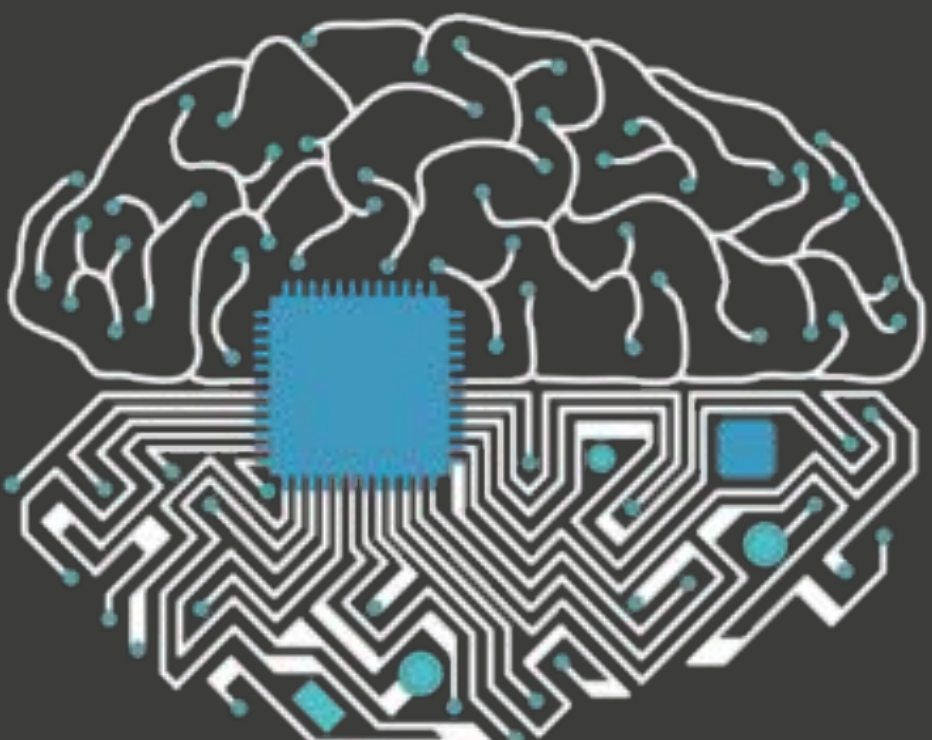
INVESTMENT ~2B€



.imec

TOWARDS NEW COMPUTE ARCHITECTURES

MACHINE LEARNING



COMPACT HYPERSPECTRAL IMAGING



FLEXIBLE ELECTRONICS THIN-FILM CIRCUITRY ON PLASTIC FOIL



APPLICATION DOMAINS

SMART HEALTH



SMART MOBILITY



SMART CITIES



SMART INDUSTRIES

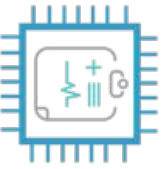


SMART ENERGY

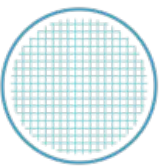


SEMICONDUCTOR & SYSTEM TECHNOLOGIES

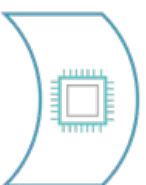
CORE
CMOS



SENSOR
TECHNOLOGY



FLEXIBLE
TECHNOLOGY



PATTERNING LOGIC MEMORY INTERCONNECT 3D INTEGRATION
TECHNOLOGY TECHNOLOGY TECHNOLOGY TECHNOLOGY OPTICAL I/O

DIGITAL TECHNOLOGY PLATFORMS

NETWORKING



DIGITAL PRIVACY &
SECURITY



SOFTWARE & DATA
MANAGEMENT SKILLS



50 BILLION CONNECTED DEVICES BY 2020

imec

PUBLIC

TSUNAMI OF SMART INTUITIVE SYSTEMS



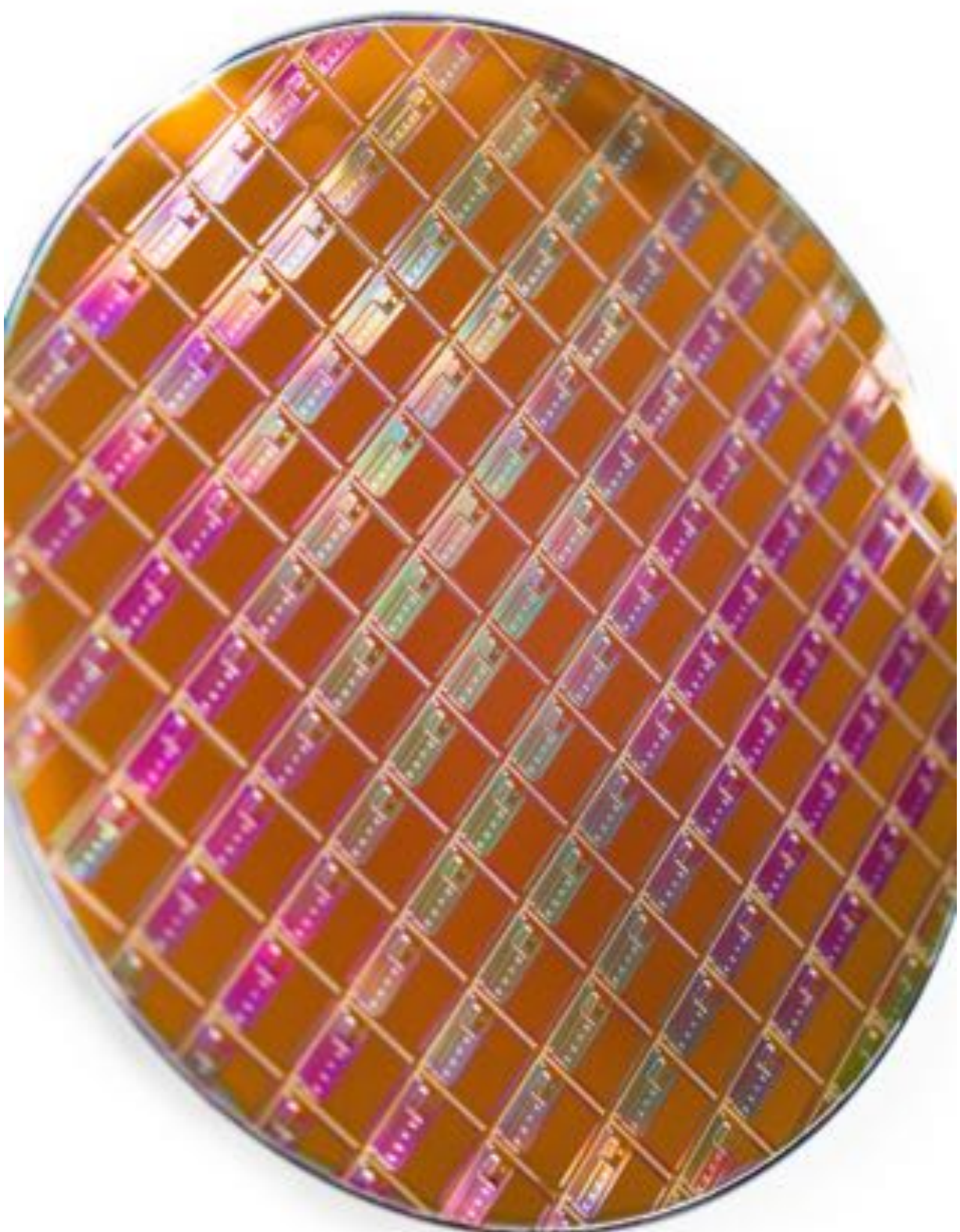
NANOELECTRONICS ENABLE DISRUPTIVE INNOVATION IN HEALTHCARE



DNA SEQUENCING

imec

PUBLIC



3X SMALLER
7X FASTER
2X LOWER COST



SMART WATCHES

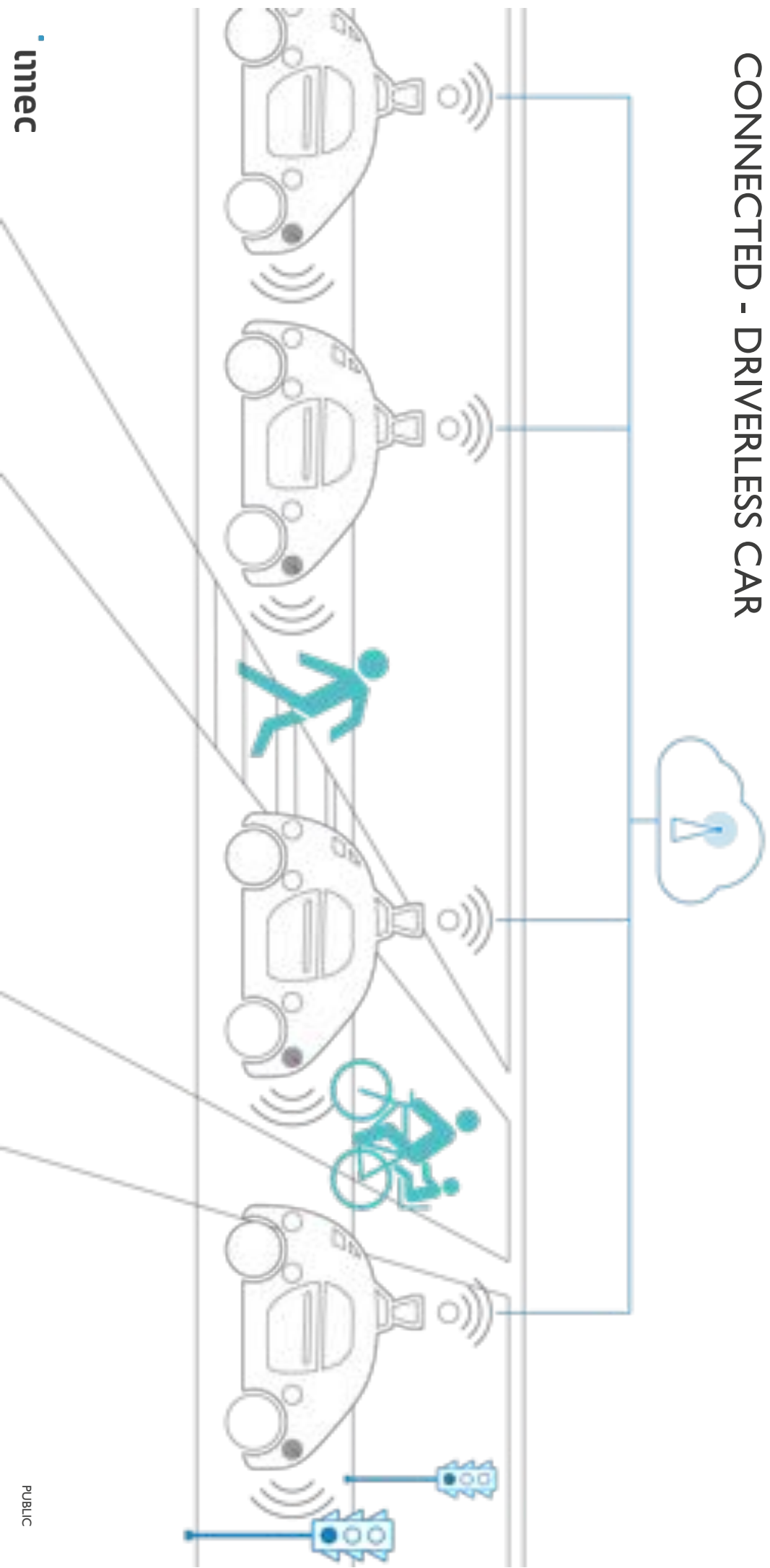
SAMSUNG SIMBAND USING IMEC SENSOR PLATFORM



SMALL, ENERGY-EFFICIENT HEALTH PATCH MONITORING PHYSICAL & CARDIAC ACTIVITY AND BIOELECTRICAL IMPEDANCE



TOWARDS SMART MOBILITY CONNECTED - DRIVERLESS CAR



MASSIVE TECHNOLOGY INNOVATION

SENSOR SYSTEMS WITH INTEGRATED PROCESSING AND MEMORY / ON-BOARD PROCESSING

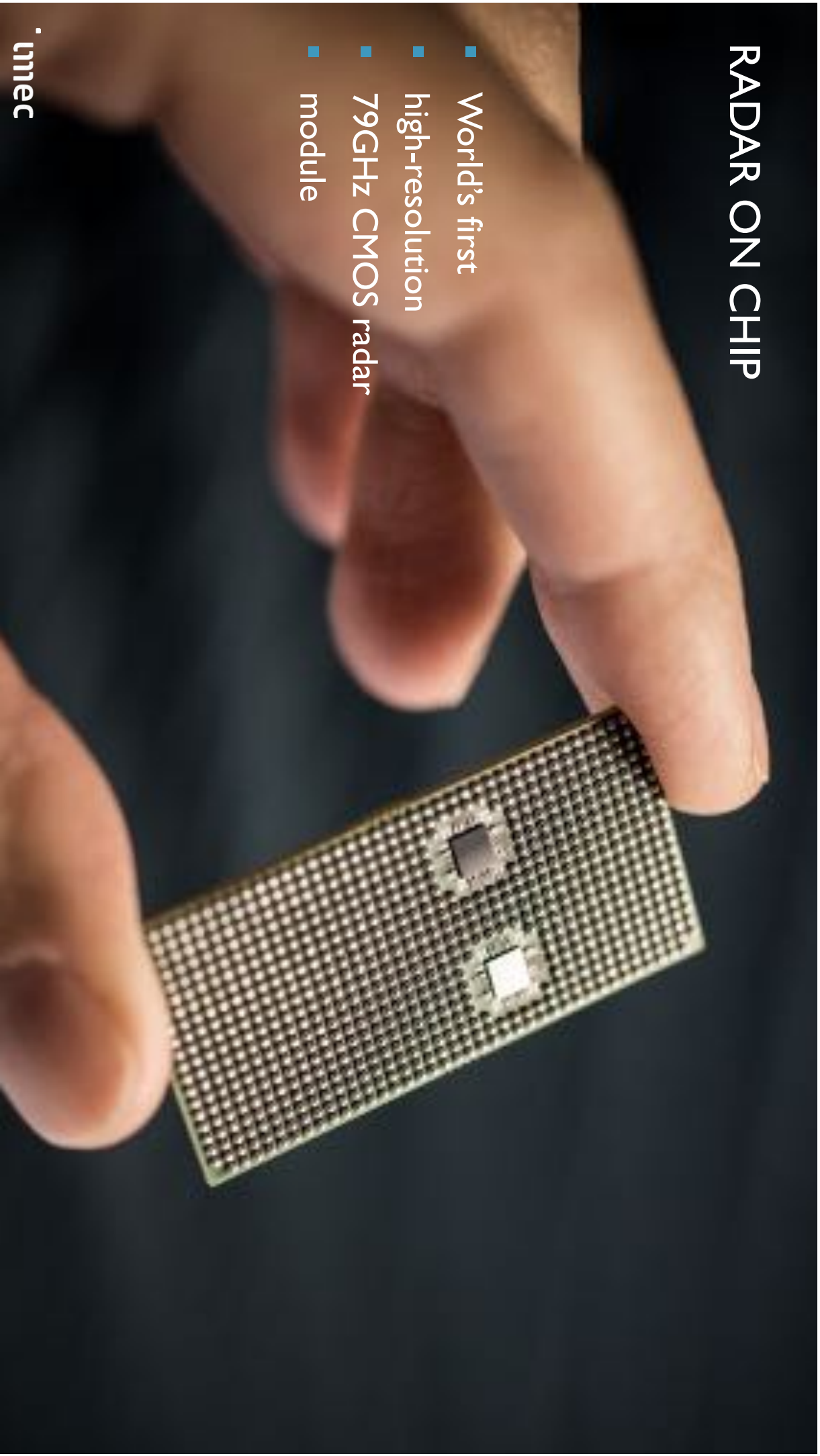


- 1 CAMERAS
- 2 RADARS UP TO 30M
- 3 RADARS UP TO 50M
- 4 RADARS UP TO 250M
- 5 LIDAR
- 6 GPS
- 7 ULTRASOUND

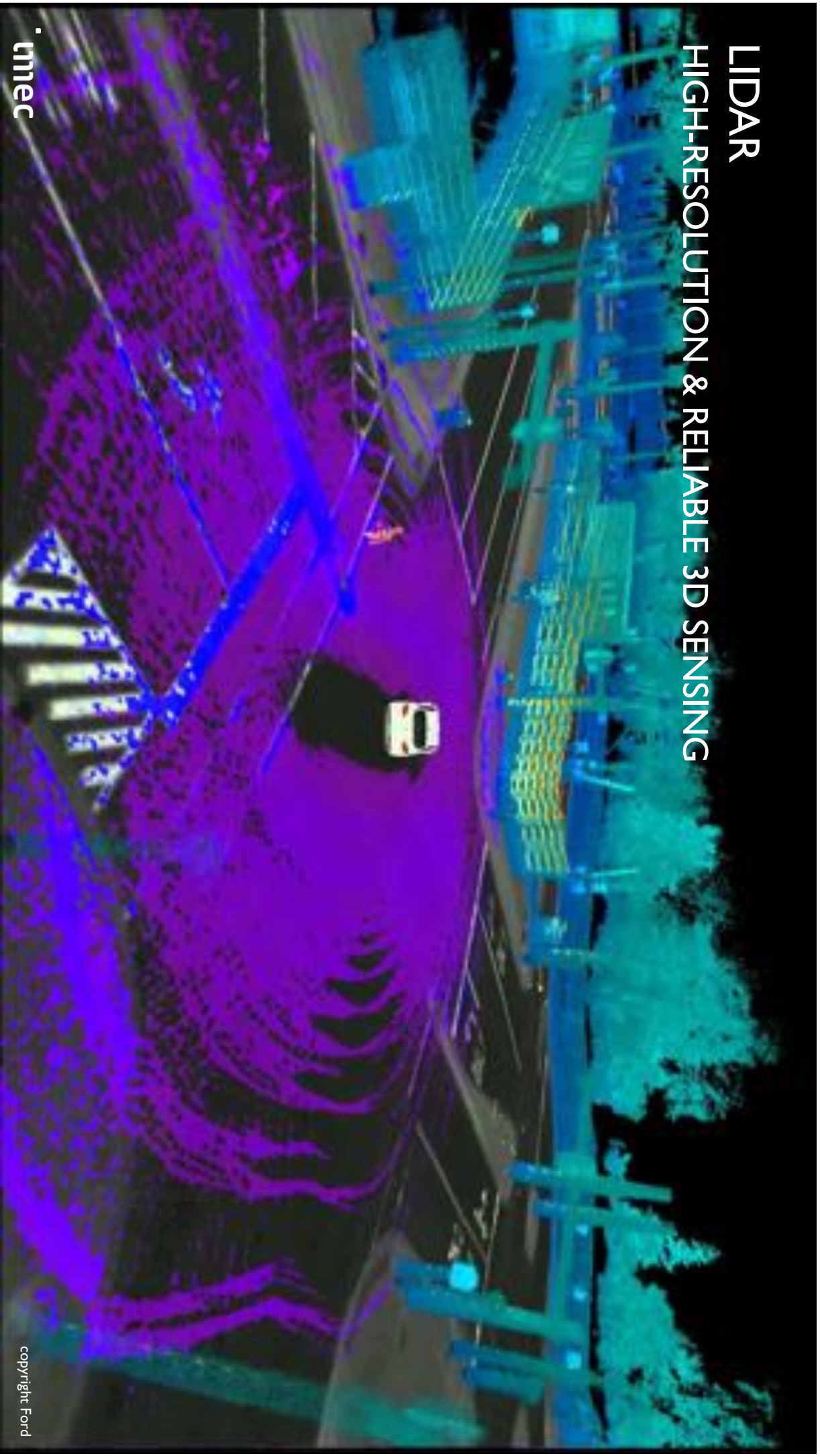
RADAR ON CHIP

- World's first
- high-resolution
- 79GHz CMOS radar
- module

imtec



LIDAR HIGH-RESOLUTION & RELIABLE 3D SENSING





smart industries

imec

PUBLIC

PLATFORM TO SUPPORT HOSPITAL WORKFLOWS SUPPLY CHAIN SAVINGS OF UP TO 30%



ROBOT FOR AUTOMOTIVE SECTOR NATURAL HUMAN MACHINE INTERFACE



imtec



RoboVision
INTEGRATED SOLUTIONS NV



smart cities

imtec

CITY OF THINGS

EUROPE'S LARGEST SMART CITY LAB

imec

PUBLIC

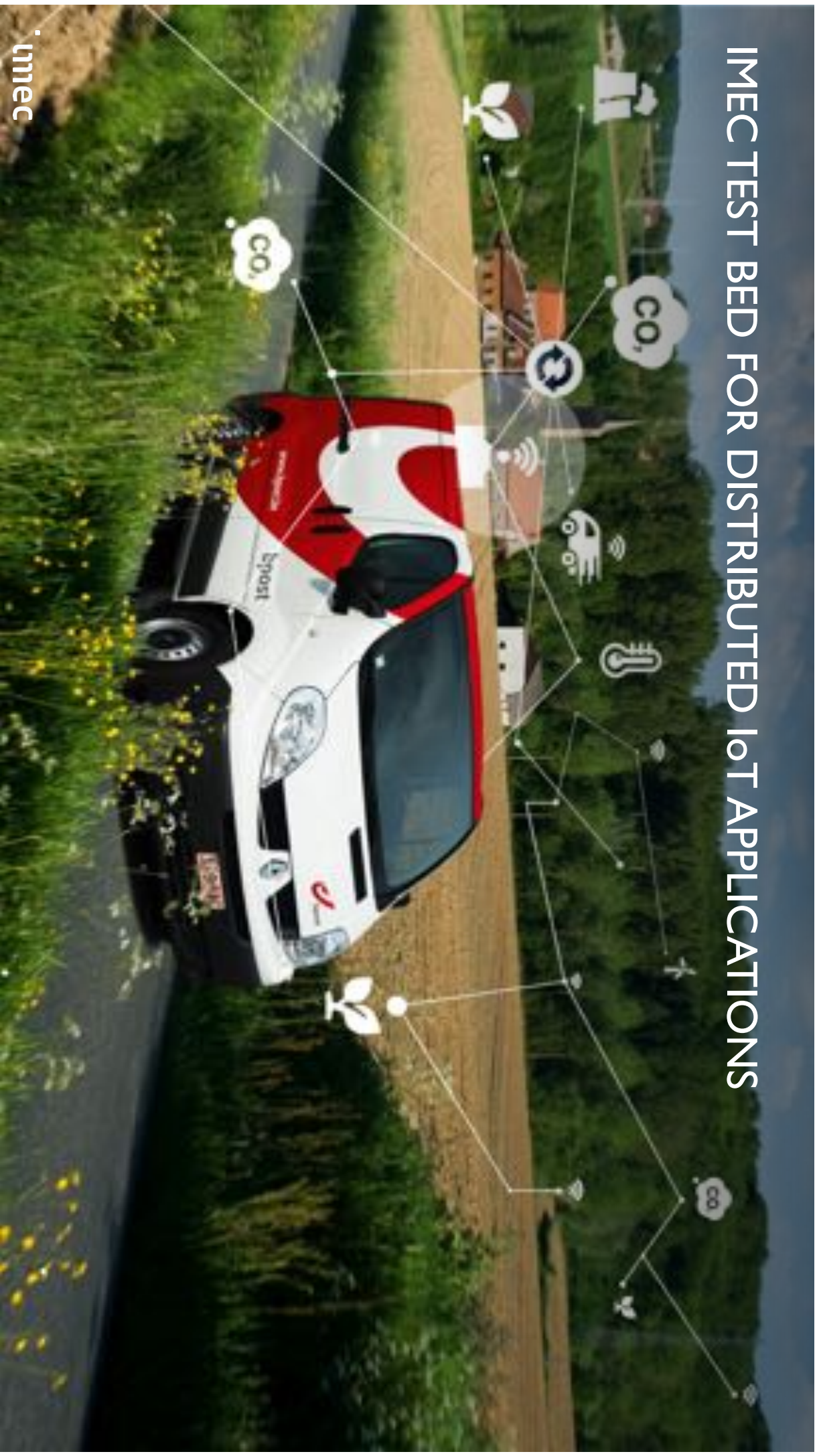
CITY OF THINGS

Focus on mobility, safety, sustainability & digital interactions with citizens.

IOT innovations will be tested and validated.

Create a large scale, real-life and real-time smart city environment.

IMEC TEST BED FOR DISTRIBUTED IoT APPLICATIONS





 smart energy

imec

PUBLIC

BUILDING INTEGRATED PV

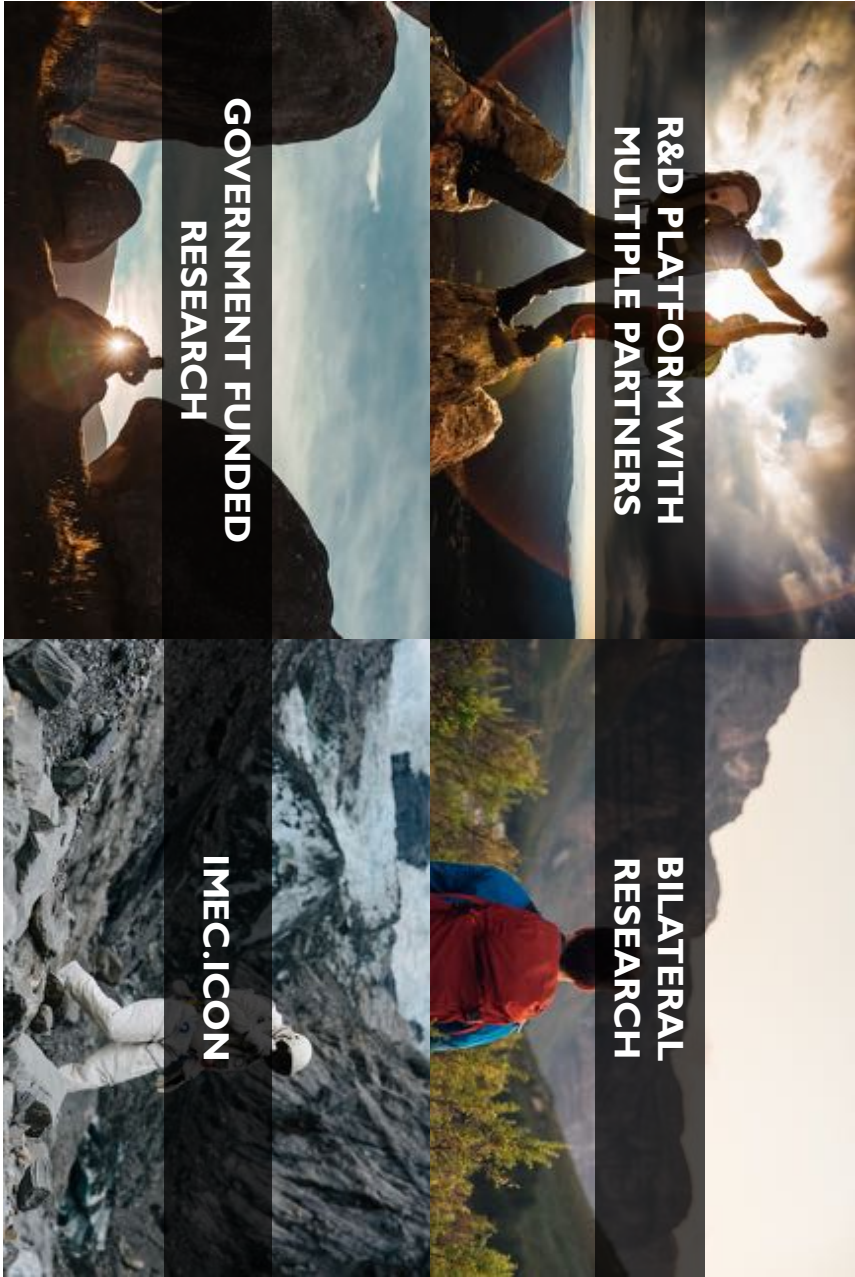


DISTRIBUTED ENERGY STORAGE COMPOSITE ELECTROLYTE BATTERIES FOR LOCAL GRID BATTERY SYSTEMS

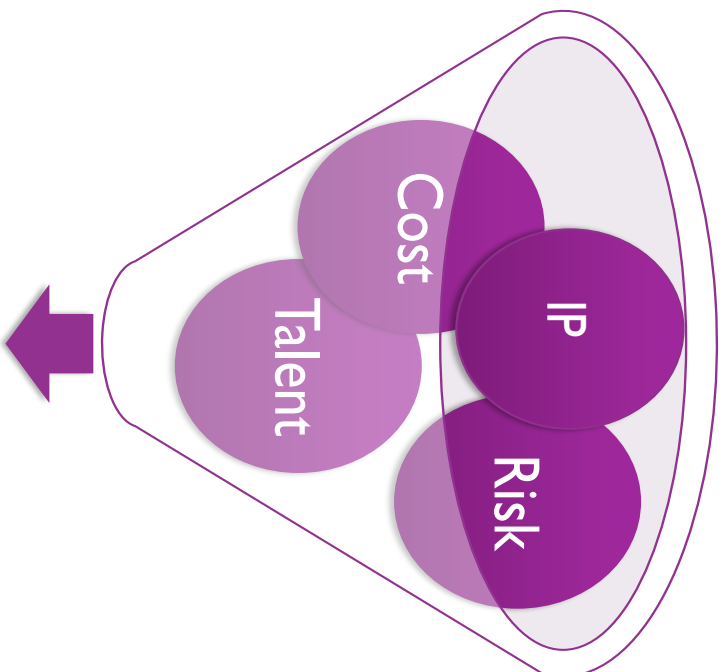


COLLABORATIONS TO ACCELERATE PROGRESS

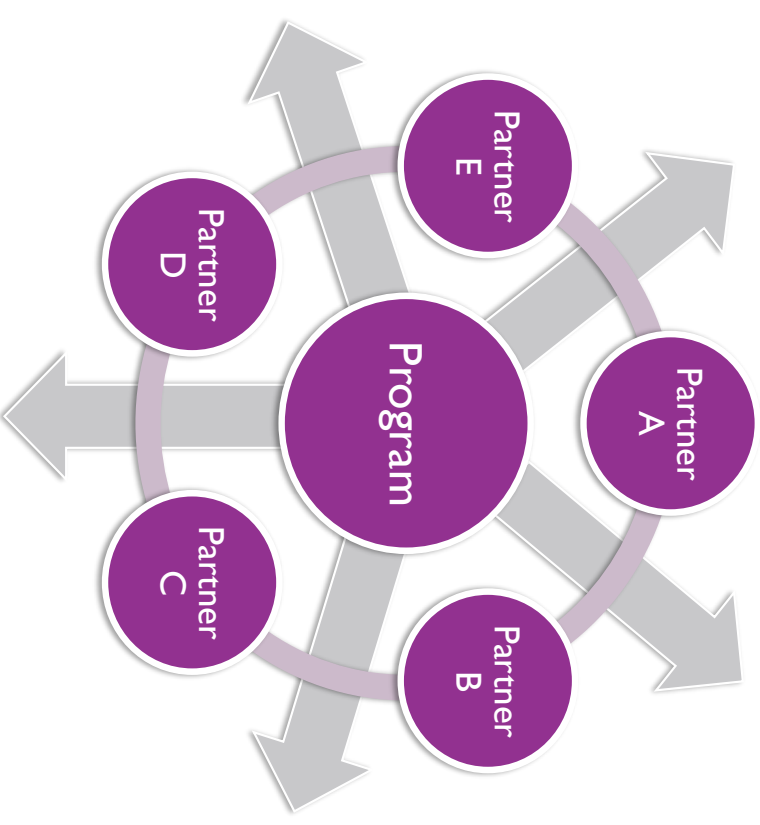
BOOST YOUR RESEARCH THROUGH COLLABORATION



COLLABORATION WITH INDUSTRY: OPEN INNOVATION



**Accelerated,
cost-effective R&D**



**Imec industrial affiliation program
Customized programs**

IMEC ECO SYSTEM

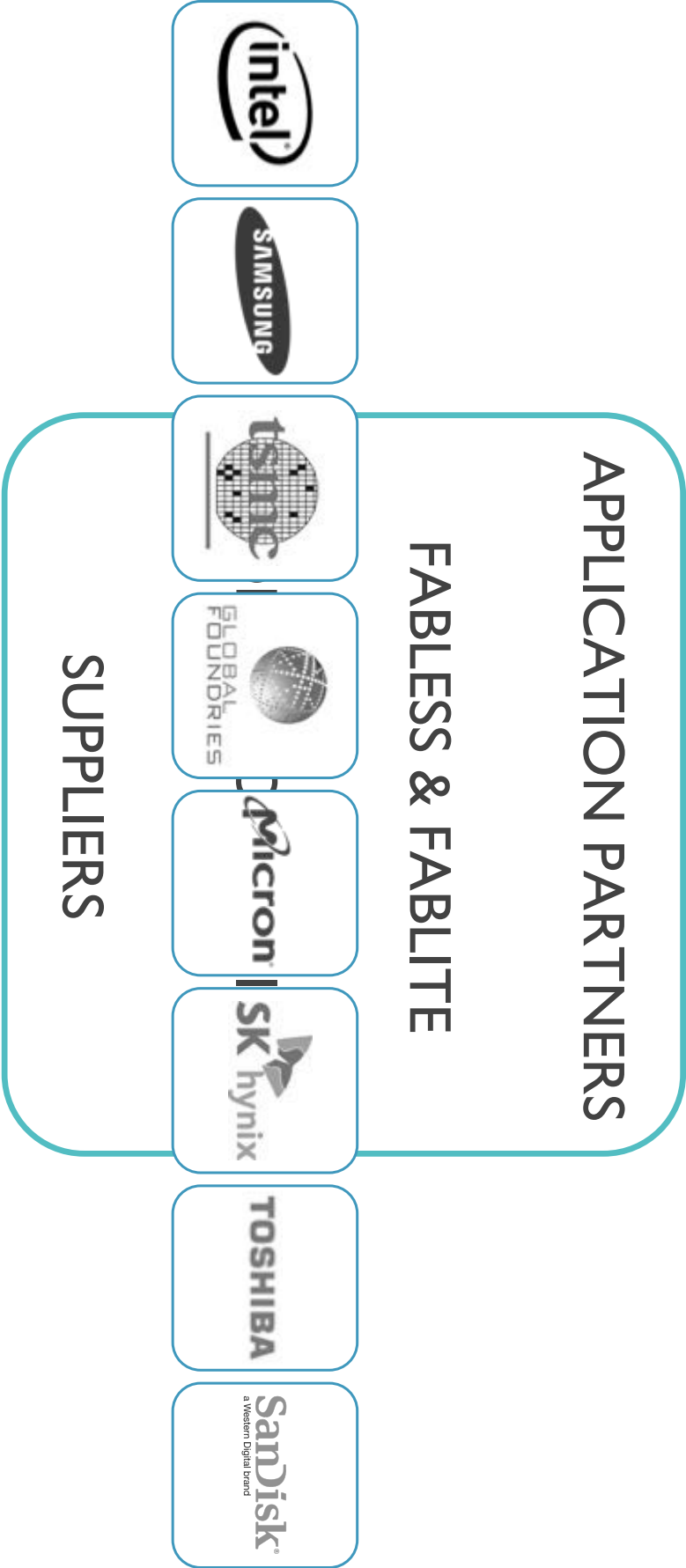
APPLICATION PARTNERS

FABLESS & FABLITE

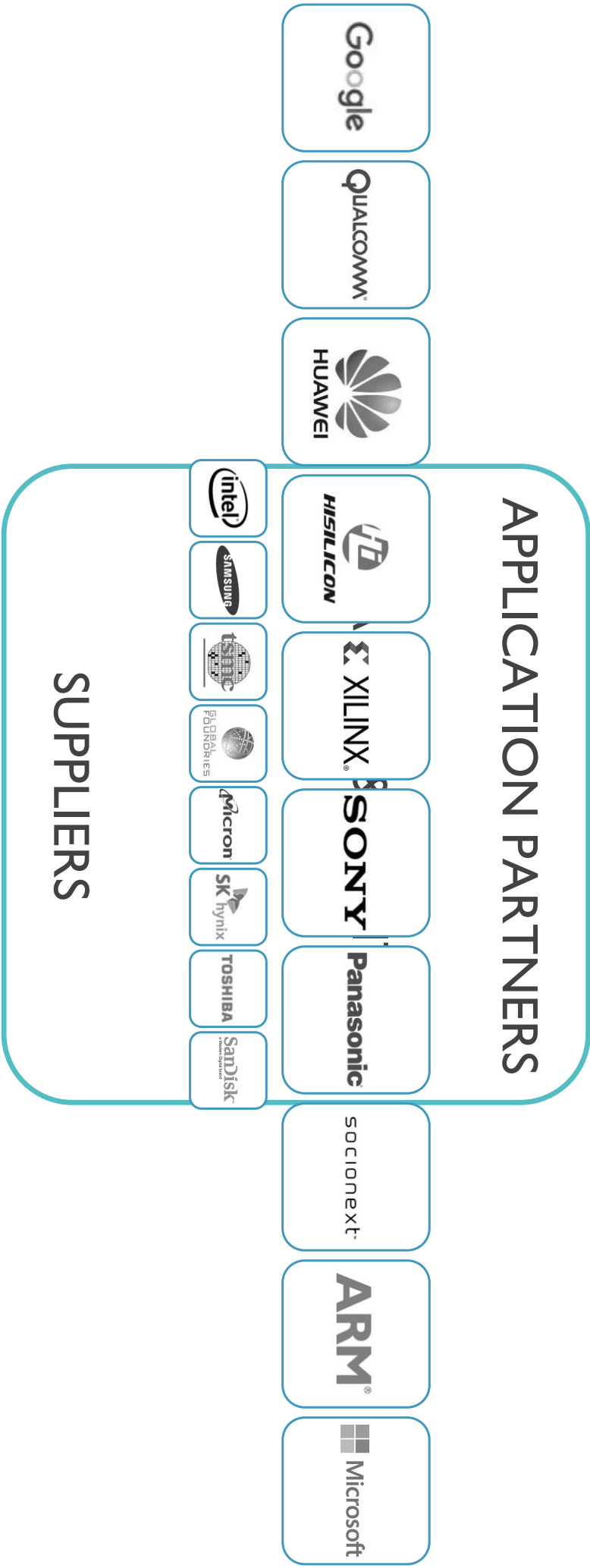
IDMS & FOUNDRIES

SUPPLIERS

IMEC ECO SYSTEM



IMEC ECO SYSTEM



IMEC ECO SYSTEM

APPLICATION PARTNERS

 TNO Applied Technology	 photon focus	 thyssenkrupp	 WM	 Google	 QUALCOMM	 HUAWEI	 HISILICON	 XILINX	 SONY	 Panasonic	 socio next	 ARM	 Microsoft	 ORACLE	 Google	 Adimec	 Sumitsum Chemical
 GOVERNOR	 KANEKA	 IAC	 DYNAMIC Technology	 PARK SOLUTION	 intel	 SAMSUNG	 TSMC	 FLUORIDES	 Micron	 SK hynix	 TOSHIBA	 Sandisk Solid State Drives	 NANDOVA partner for memory	 Shin-Etsu	 ISR Micro	 inkor technology	 Hitech Chemical
 CAMEL	 Merck	 DNP	 ultratech	 TOPPAN	 LG Chem	 Lam	 APPLIED MATERIALS	 TEL	 ASM	 KULYONCOR	 SCREEN	 RITRON	 ZEISS	 TOWA	 CYMER	 Mentor Graphics	 Cadence
 DISCO	 Ampria	 Kureta	 JX	 Nissan Chemical	 SISS Microtec	 CANON SEMICONDUCTOR DIVISION	 AlluS Group	 GOMMAFOS	 Draiver Science	 Satec	 PVA TePla	 siltronic Power Semiconductor Division	 tok	 PONGSAN	 FUJIFILM	 OXFORD	 RIBER
 TOYOTA	 ZEON	 BRUKER	 ARION VALLEY	 NUFLARE	 DONGJIN	 FrontAction Inc.	 LEVITECH	 SYNOPSIS Technology Inc.	 IBM Watson Inc.	 Hitachi HighTech	 Entegris	 FEI	 Quantum Wise	 nanometrics	 BASF	 N-TECH	 CENTRAL GLASS

FACTS & FIGURES

USA
SAN FRANCISCO

USA
ORLANDO

BELGIUM - HQ
LEUVEN

THE NETHERLANDS
EINDHOVEN

INDIA
BANGALORE

CHINA
SHANGHAI

JAPAN
OSAKA

TAIWAN
HSINCHU

JAPAN
TOKYO

ANTWERP
CITY OF THINGS



KORTRIJK

SMART EDUCATION



GHENT
SMART APPLICATIONS



BRUSSELS
EU HUB



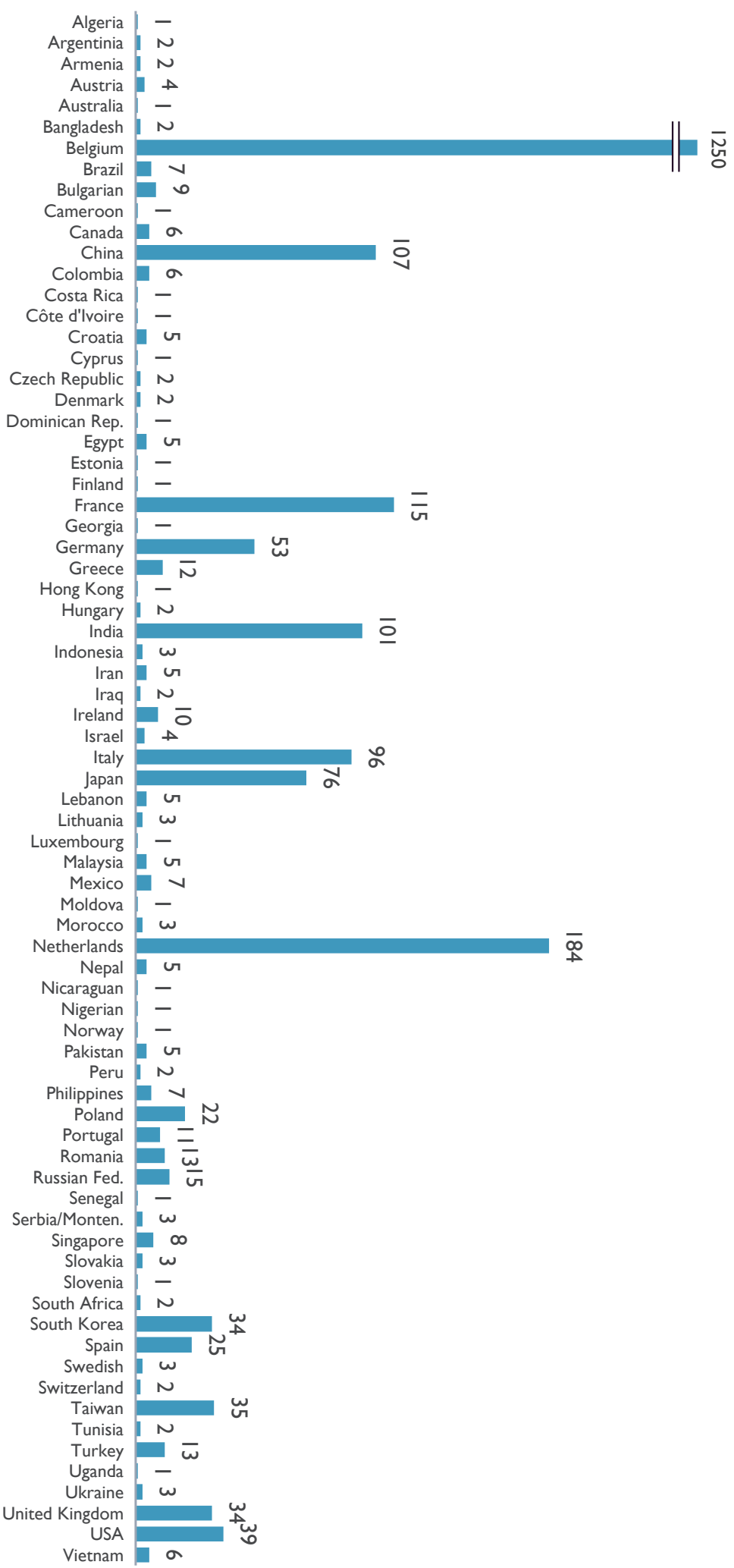
LEUVEN
HEADQUARTERS

~3,500 RESEARCHERS

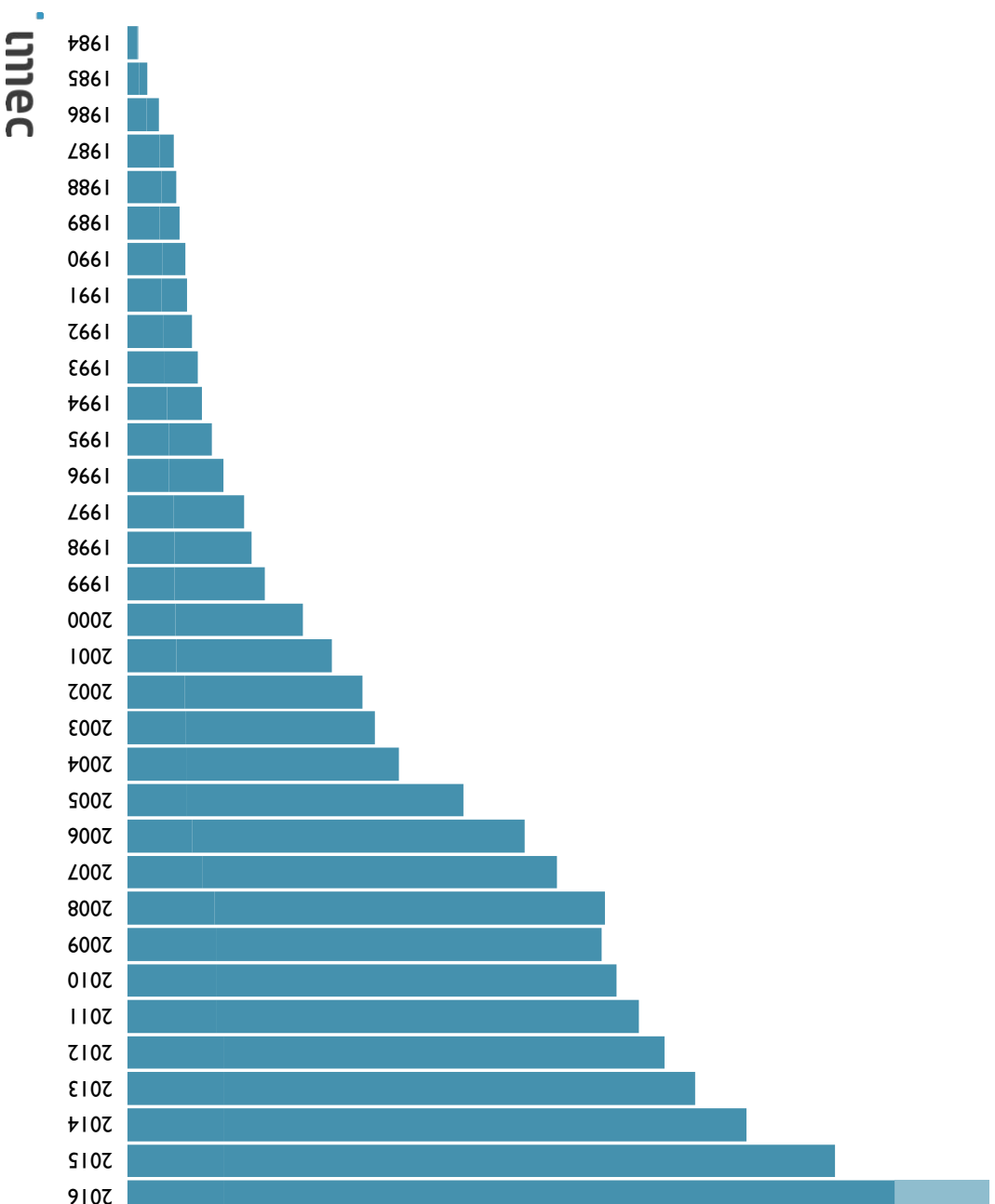
UNGC

UNGC

74 DIFFERENT NATIONALITIES



REVENUE



imc

2017: ~500M€

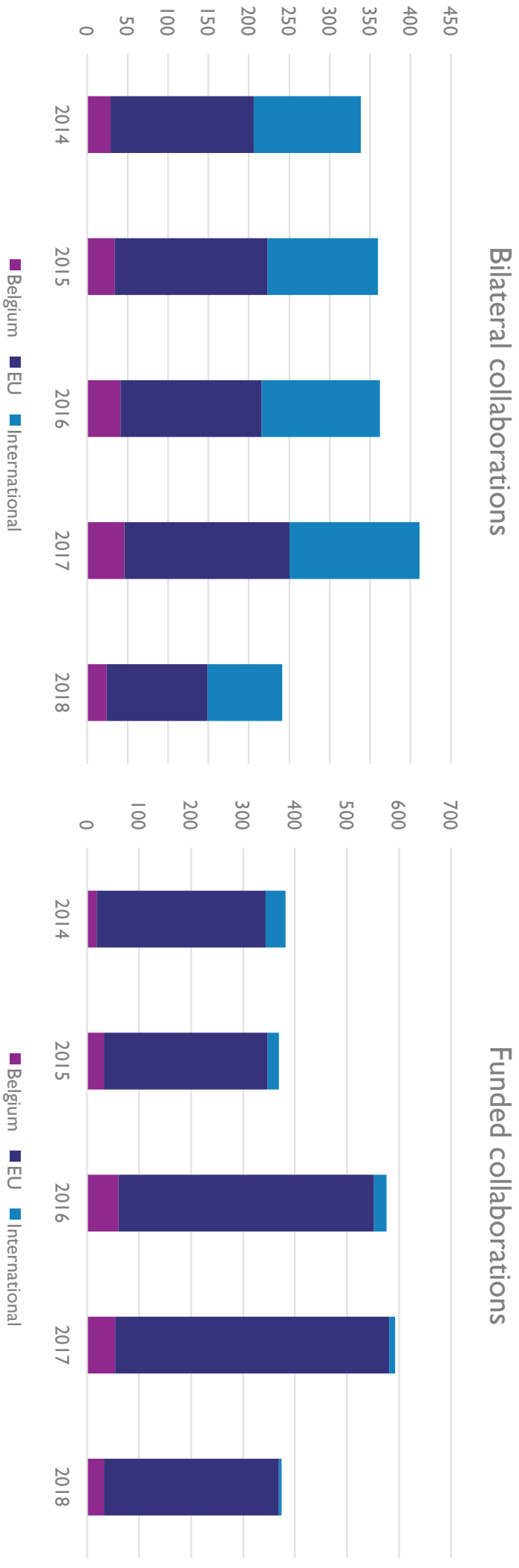
PUBLIC

COLLABORATIONS WITH UNIVERSITIES

~ 200 ACTIVE COLLABORATIONS WITH UNIVERSITIES

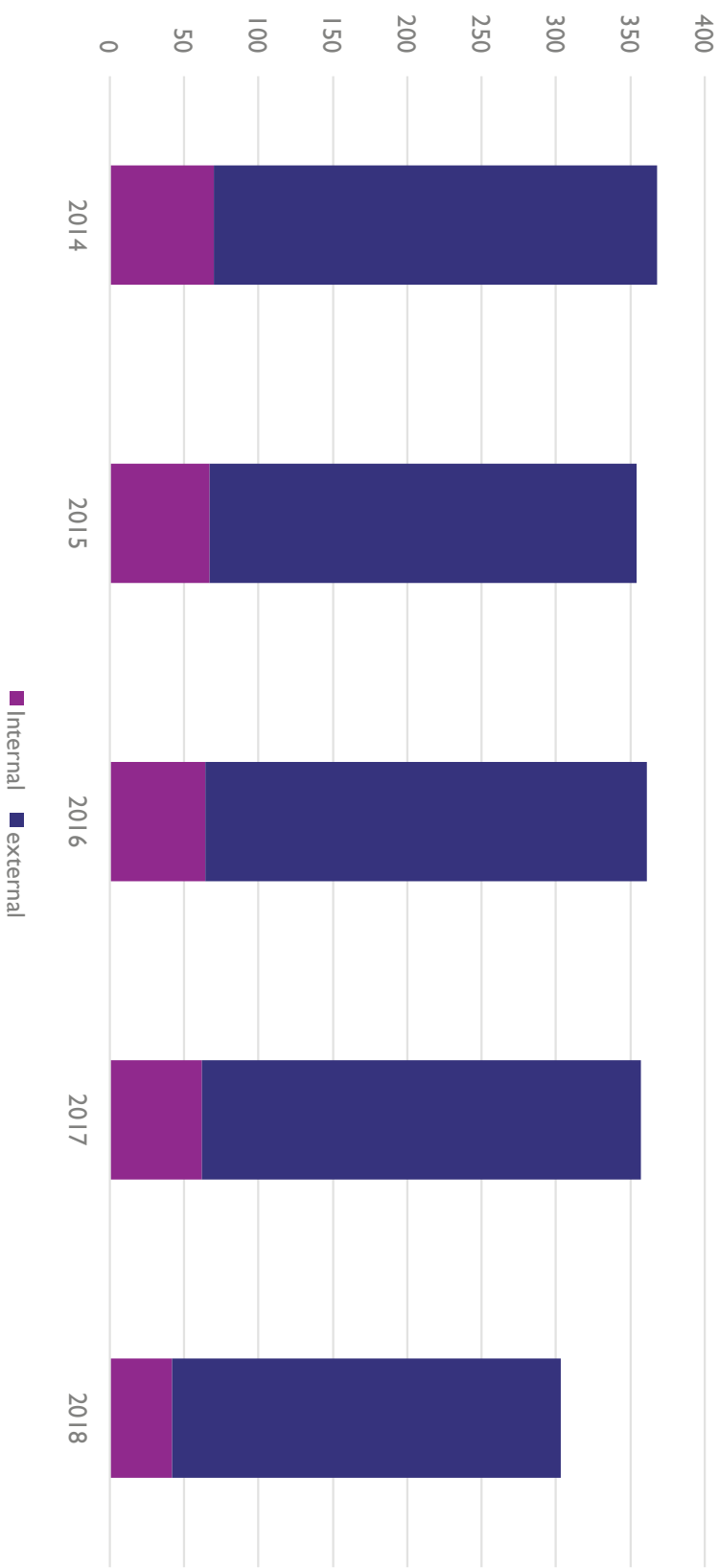


NUMBER OF COLLABORATION INITIATIVES WITH UNIVERSITIES *

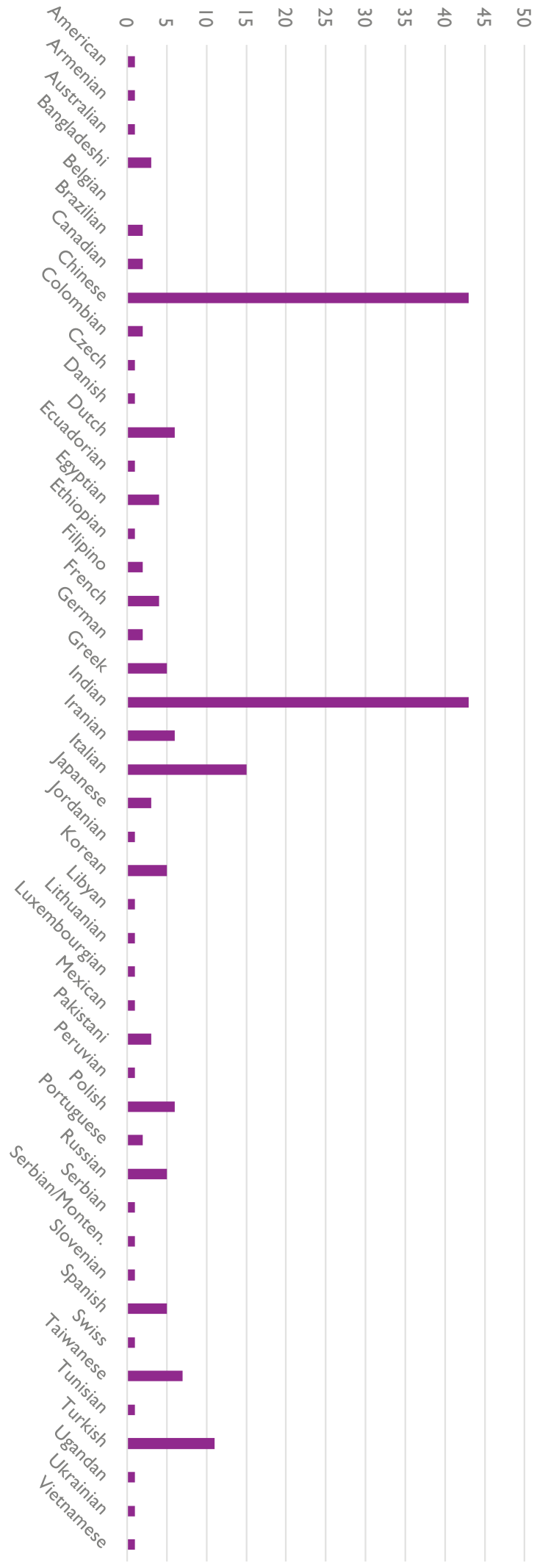


* EU = Excluding Belgian universities
International = excluding EU

NUMBER OF PHD STUDENTS @ IMEC

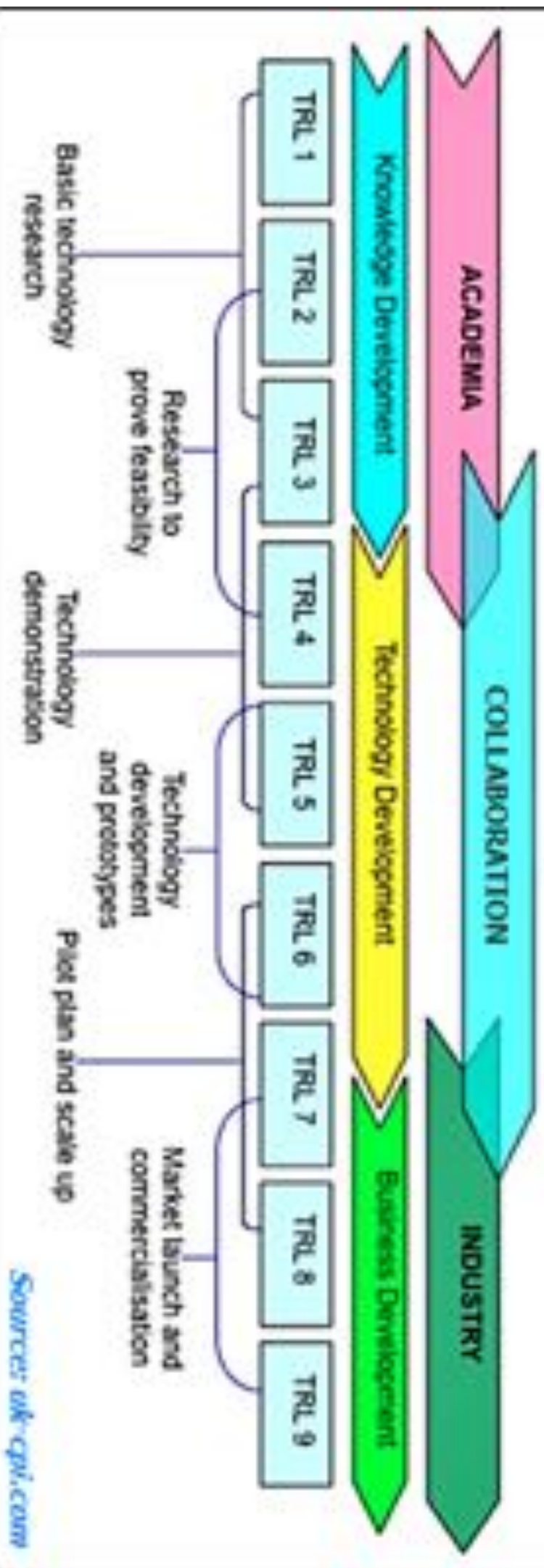


NATIONALITIES OF PHD STUDENTS @ IMEC (2018 - N=207)



TYPES OF COLLABORATIONS

The Innovation Chain: Converting Science into Wealth



OPEN INNOVATION MODEL @ UNIVERSITIES: CHALLENGES

1. Competing for the best talent
2. Master students: issues with confidentiality and IP-ownership
3. PhD-students: IP co-owned by universities – liabilities for industry partner
4. Public Funded projects: (almost) no issues
5. Main challenges in negotiating (Frame) Agreements
 1. Accountability/liabilities often 'waived' by universities
 2. IP transfer to industrial partners
 3. Licenses for background knowledge
 4. Hard commitments w.r.t. timing and deliverables
 5. Partnership authority versus academic autonomy
 6. Remuneration practices

OPEN INNOVATION MODEL @ UNIVERSITIES: LEVERS

1. University with a genuine 'international' vision and strategy
2. Top level professionals on staff
3. Structure of top teams optimized with young talented researchers
3. Culture of cultivating talent
4. Creating an environment for career enhancement, by
 - Support in clarifying researchers' aspirations
 - Providing competitive incentives
 - Interactive research environment
 - Scientific resources
5. Starts with a formal, intensified international recruitment program based on
 - Solid recruitment criteria: achievements, creativity, deep level learning
 - Academic excellence of institutes
 - Overseas experience
 - Cross disciplinary approach
6. Faculty exchange program for attracting experts (Contract positions)
7. HRM Focus on talent development (personal growth) – match with imec

INTERNATIONAL TALENT MANAGEMENT @ IMEC



GLOBALIZATION

War for talent

organizations



cities



organizations



cities

INTERNATIONAL EMPLOYEES HAVE MANY SPECIFIC CONCERNS AND NEEDS, BEYOND THEIR JOBS

**Schooling &
daycare**

Housing

Social life

Partners

Administration

Employment

Relocation

Immigration

New culture

Health care

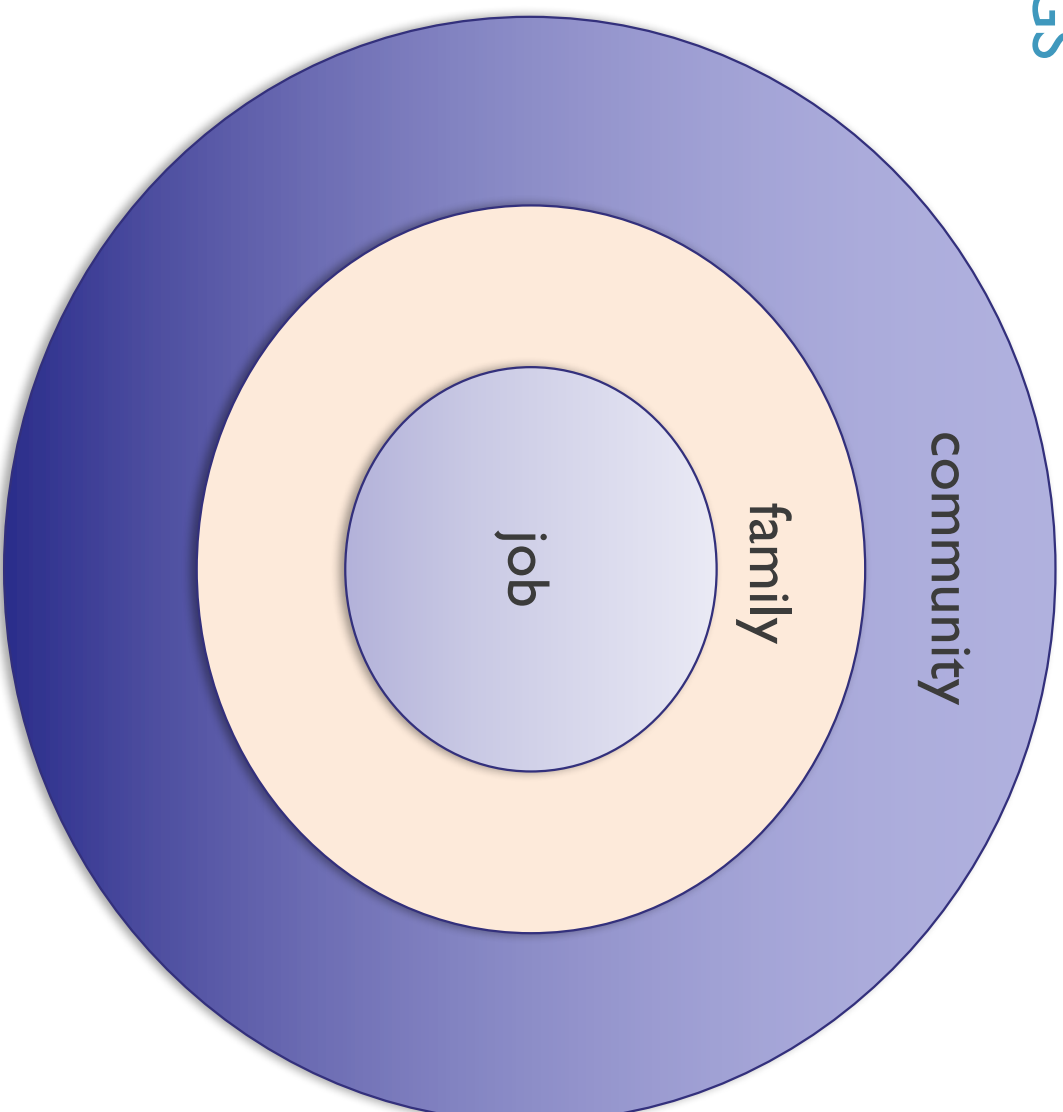
Social

security

Taxes

Dual careers

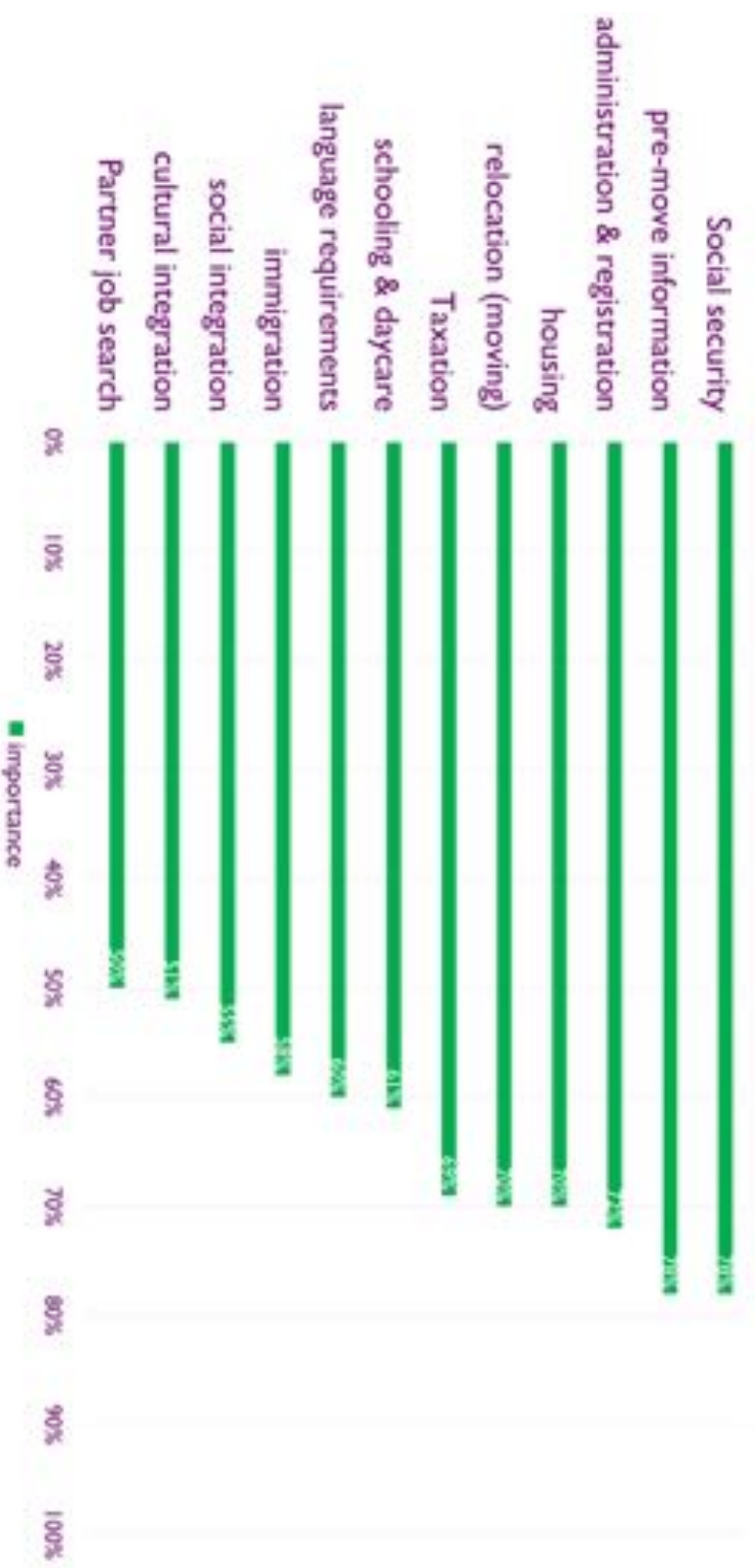
SOME FINDINGS



APPROACH

	PRE ARRIVAL		ARRIVAL		POST ARRIVAL	
	Employee	Family	Employee	Family	Employee	Family
	Employment & career development					
	Relocation & Housing					
	Admin/registration/immigration					
	Healthcare, social security & taxation					
	Language					
Integration (social & cultural)						
Education & care for children (youth)						

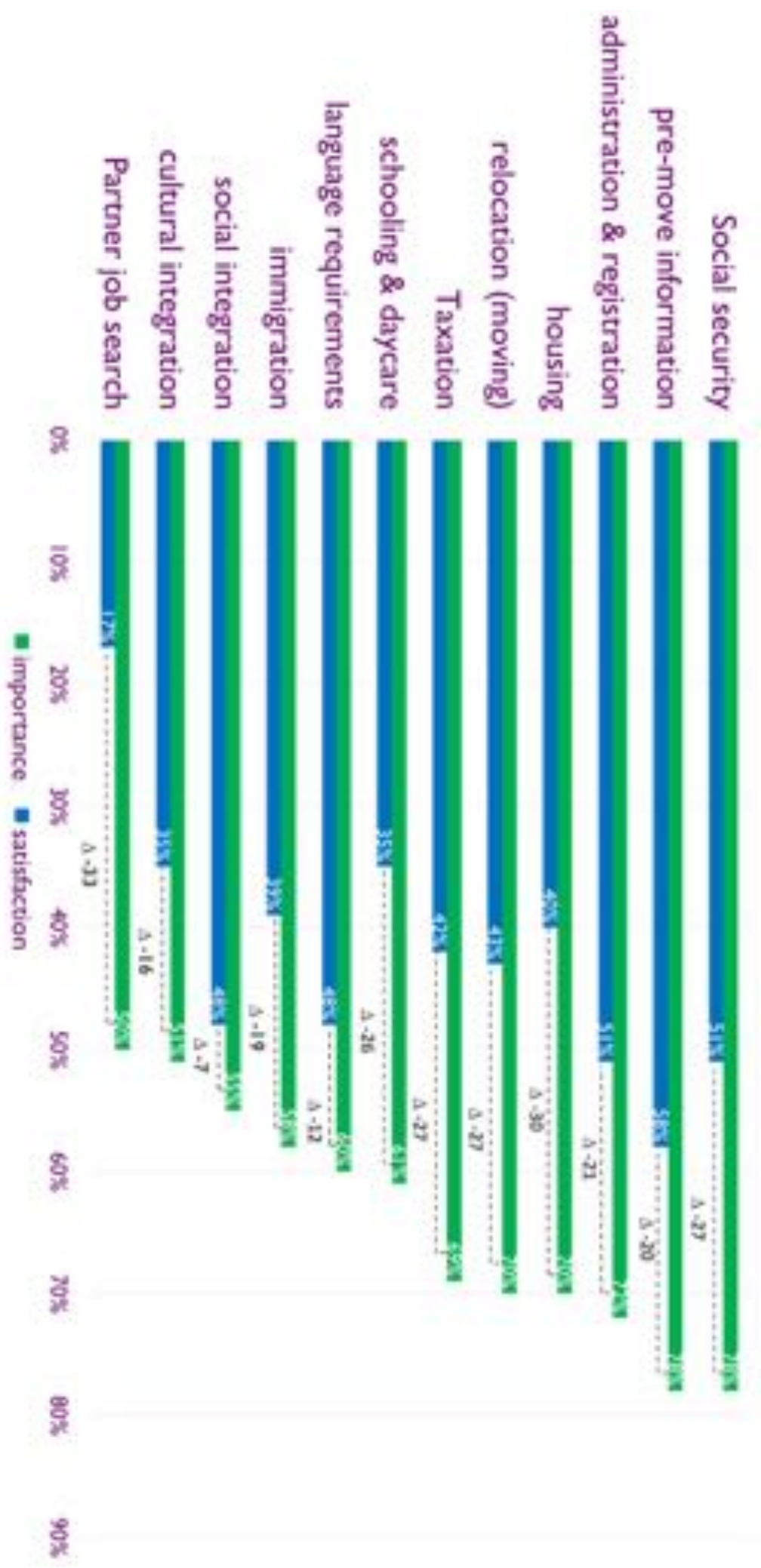
IMPORTANCE OF SUPPORT



SATISFACTION WITH SUPPORT



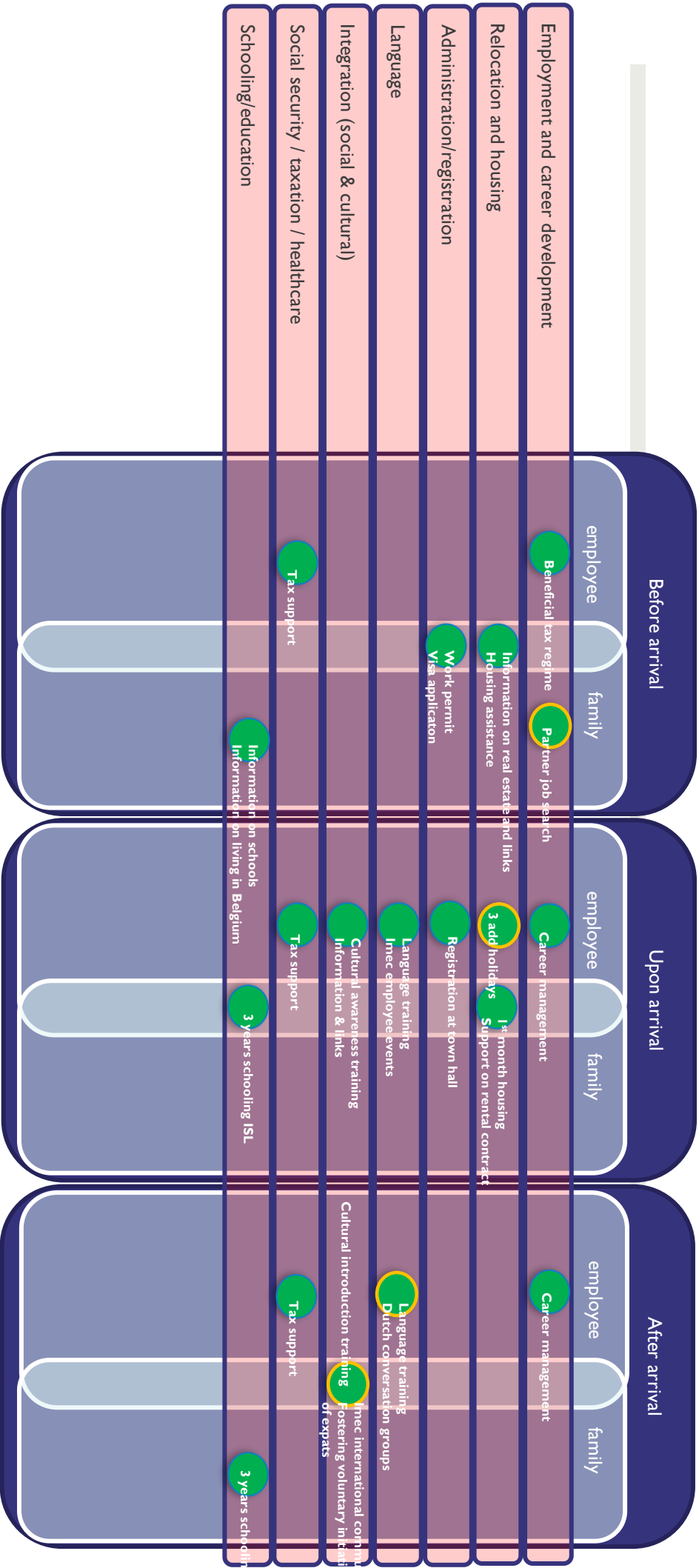
GAP ANALYSIS



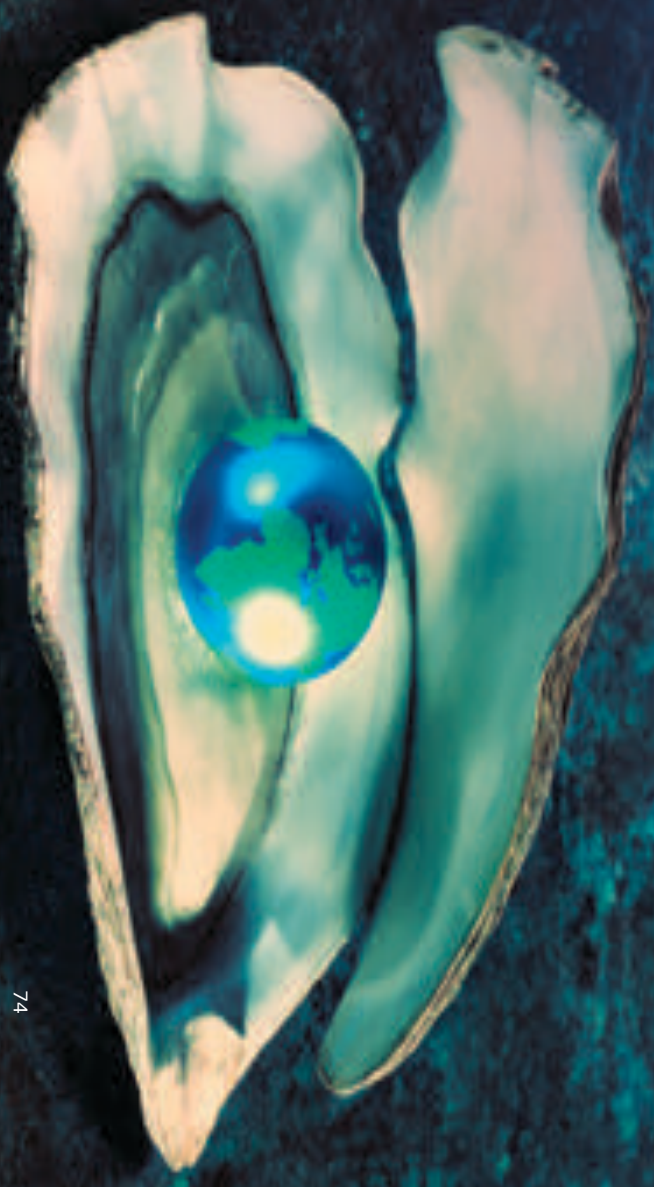
CONCLUSIONS

- Available support matches with short-term needs (information, social security, administration) and is generally appreciated
- Room for improvement: taxation, housing, job search for partner,...
- Partner integration and integration in local community are important factors for retention and are a challenge

THE IMEC CASE FOR INTERNATIONAL TALENT



PASSION FOR INTERNATIONAL TALENT



A NEW EQUATION
FOR MANAGING INTERNATIONAL TALENT

“PASSION BY EXCELLENCE”

TALENT AT WORK

1. IMEC IS A KNOWLEDGE ORGANIZATION
2. THE NEW EQUATION OF WORK
3. TALENT MANAGEMENT 'AT WORK'



IMEC IS A KNOWLEDGE ORGANIZATION

Mathieu Weggeman

**Managing Professionals?
Don't try!**



**About knowledge workers,
craftsmanship and innovation**

SCRIPTUM

© imec - Hubert De Nève

The 'good' news-1

Professionals are passionate about their jobs...

The 'bad' news-1

Passion can fade out...

The 'bad' news-2

*Professionals are not manageable
by imposing rules and procedures
or by introducing information systems.*

The 'good' news-2

*The energy level of professionals
depends on the opportunity for identification with
"superior goals" of an organization.*



PUBLIC

IMEC IS A KNOWLEDGE ORGANIZATION

... hence there is a need for planning and control by using rules and procedures

- Task procedures
- Time writing
- Vacation requests
- Budget sheets
- Project plan
- Status report
- Performance plan
- Salary tables
- Balanced Scorecard
- Cascading “goals & objectives”
- Rules for conference participation
- Travel requests
- KPI
- Role descriptions
- Competency profiles
- Quality procedures and ISO 9000-standards
- Procedures for ‘brain dumps’ in databases
- ...



Passion killers

The origin of professionalization: a mission, a vision

***“If you want to build a ship,
don't drum up the men to gather wood,
divide the work and give orders.
Instead, teach them to yearn
for the vast and endless sea.”***

Antoine de Saint-Exupéry



imec aims to shape the future

As a **trusted partner** for companies, start-ups and academia we bring together **brilliant minds** from all over the world in a creative and stimulating environment.

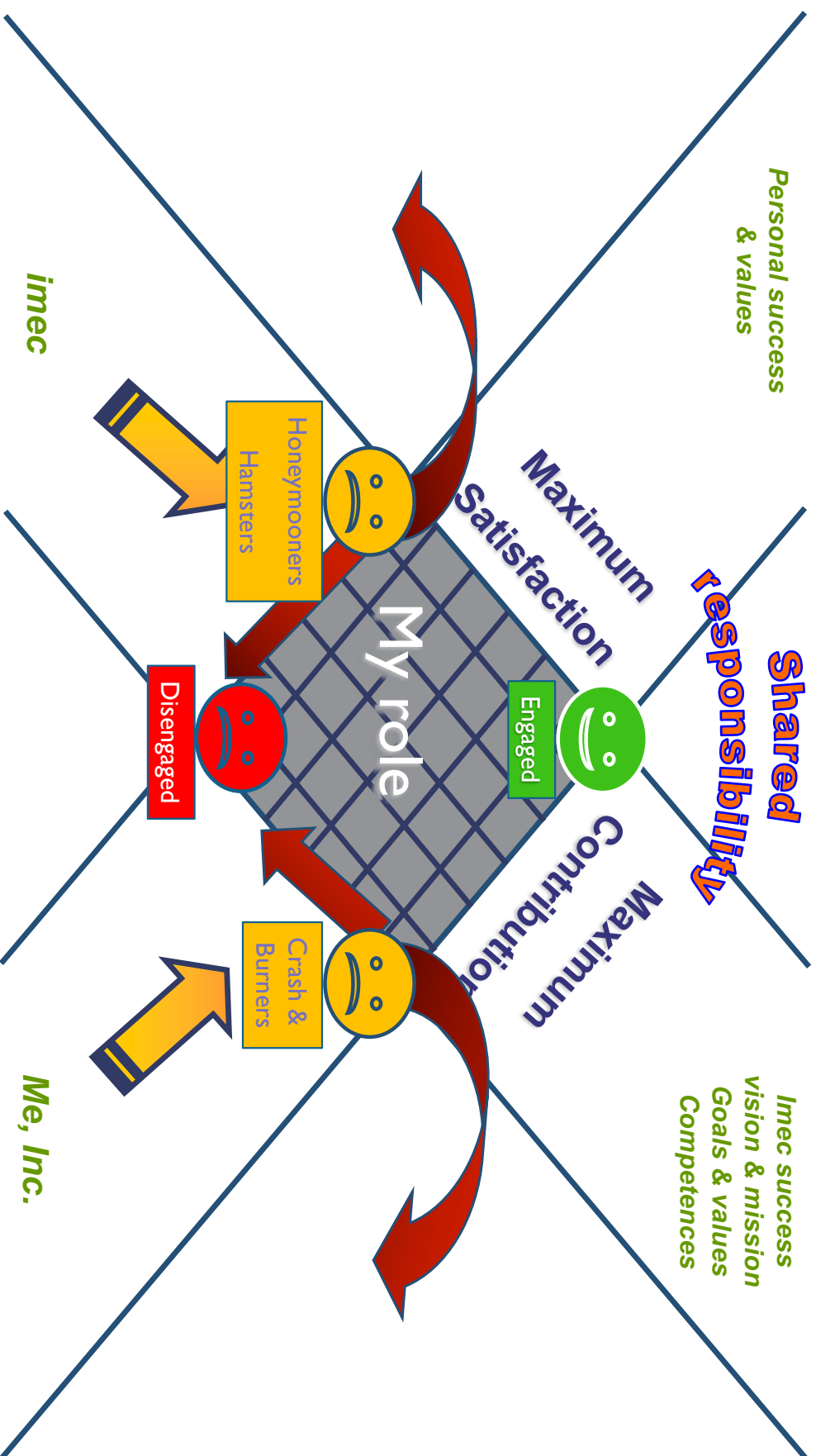
By leveraging our **world-class infrastructure** and local and global ecosystem of diverse expert partners across a multitude of industries, we accelerate progress towards a **connected, sustainable future**

CONTENT

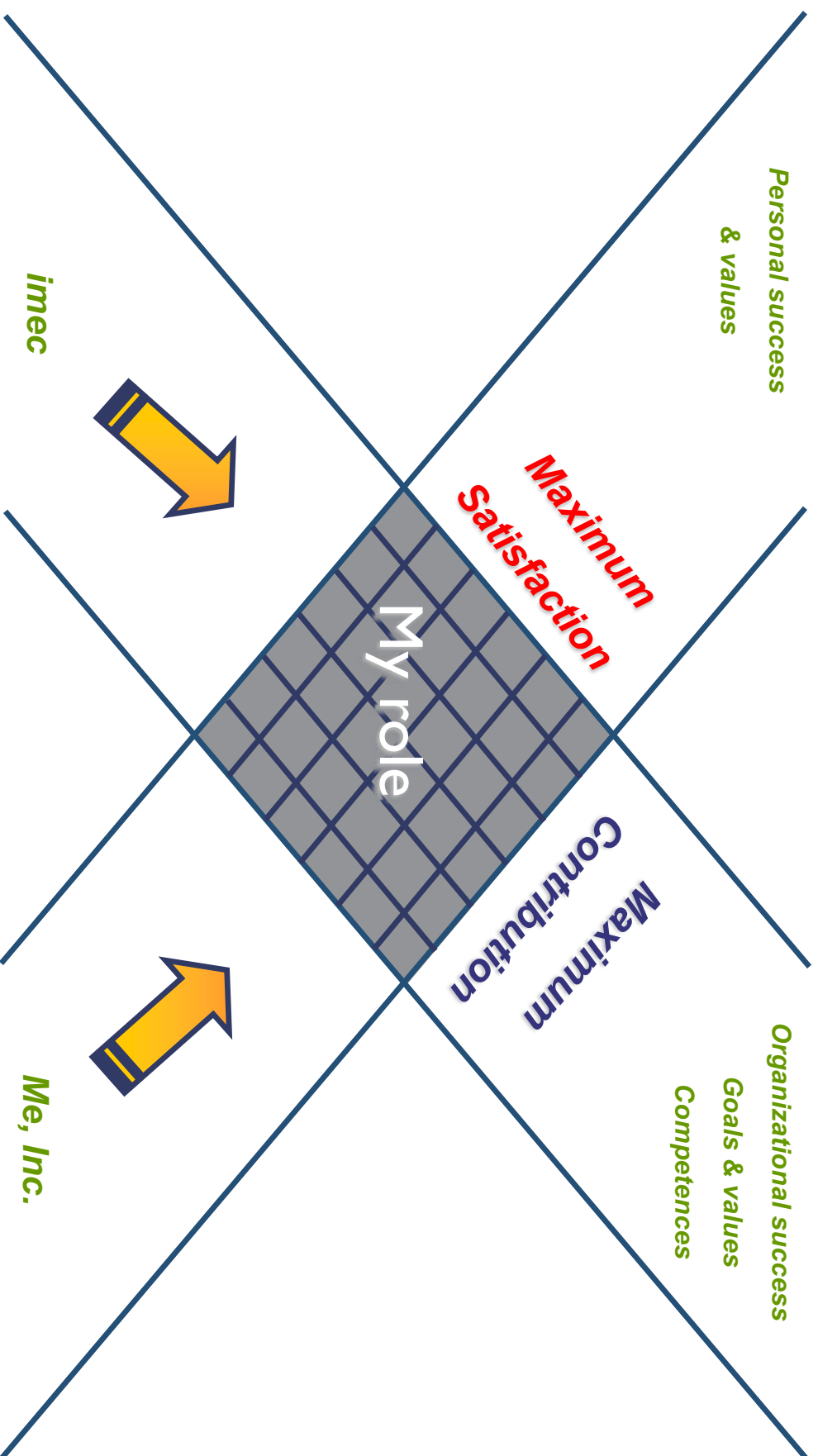
1. IMEC IS A KNOWLEDGE ORGANIZATION
2. THE NEW EQUATION OF WORK
3. TALENT MANAGEMENT 'AT WORK'



The new equation: passion x excellence



The new equation: passion x competence



PERSONAL “VALUES” OF KNOWLEDGE WORKERS (PASSION)



Autonomy

*Dedication to
a cause*



Power & Impact

Challenge



Stability



Entrepreneurship

And many other...

Excellence



Live



IMEC VALUES

INTEGRITY
PASSION
CONNECTEDNESS
EXCELLENCE

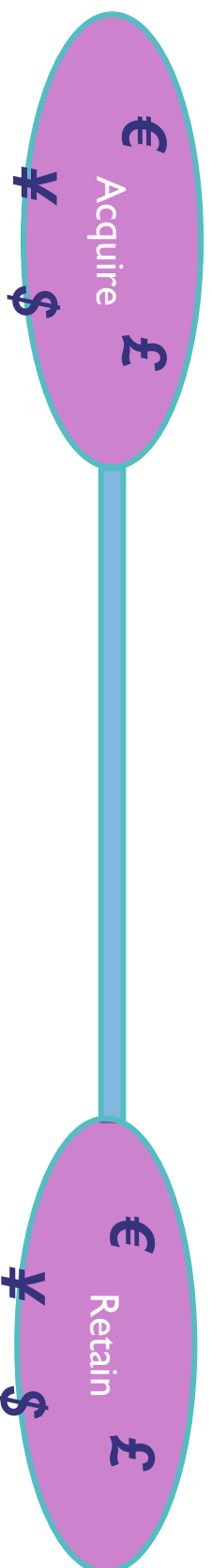
EMPLOYEE SATISFACTION SURVEY – 2017



(score previous survey)

The diagram illustrates the relationship between an individual's role and their organization. At the center is a grey diamond labeled "My role". To the left, two yellow arrows point towards the diamond, labeled "imec" and "Me, Inc.". The diamond is flanked by two blue diagonal lines. The top line is labeled "Personal success & values" and "Maximum Satisfaction". The bottom line is labeled "Organizational success Goals & values Competences" and "Maximum Contribution".

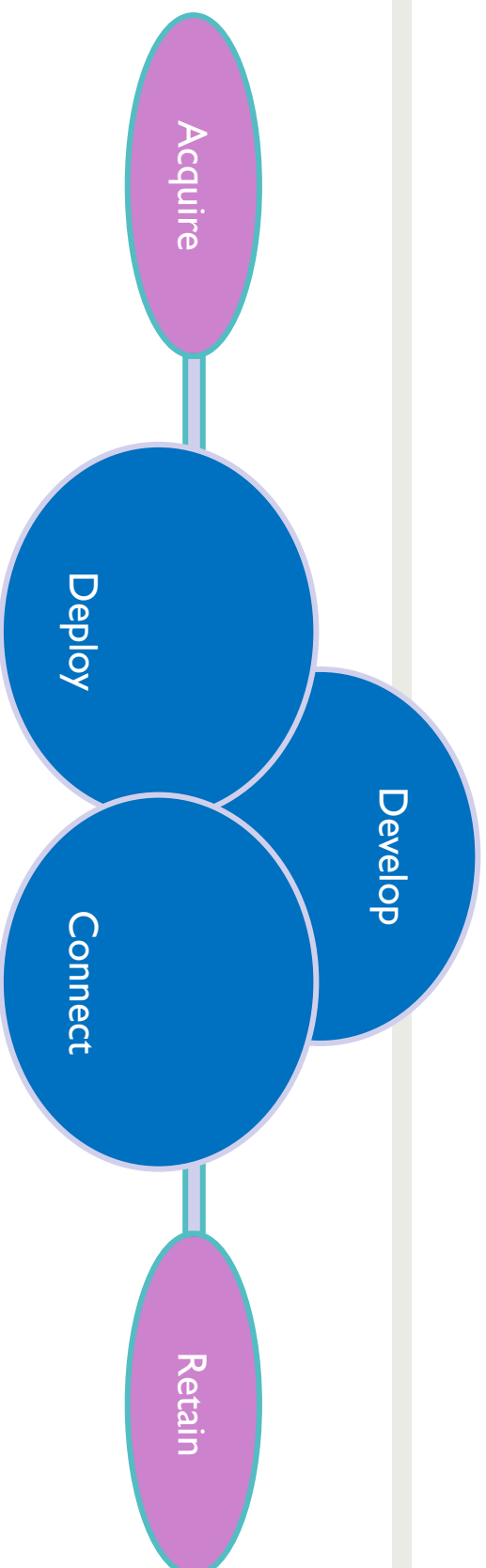
TRADITIONAL TALENT MANAGEMENT



“This double focus on the end points of the talent management process is problematic for many reasons, primarily because it ignores the things that matter most to employees.”

Imec Business Plan 2017-2021

WHAT MATTERS MOST TO EMPLOYEES...



"Of course every external talent cannot be ignored by anyone who takes attracting and recruiting very seriously.

At the same time imec tries to be less vulnerable to a workforce turnover.

In fact, the focus must be on things that employees care about most.

- **deploying onto work that engages their heads and hearts,**
- **opportunities for developing in ways that stretch their capabilities, and**
- **the awareness of being connected 'to what really matters' in the organization.**

CONTENT

1. IMEC IS A KNOWLEDGE ORGANIZATION
2. THE NEW EQUATION OF WORK
3. TALENT MANAGEMENT 'AT WORK'



TALENT MANAGEMENT 'AT WORK'

1. Recruitment and selection
2. Performance Management
3. Learning
4. Leadership development
5. Career Management
6. Personal growth

I. RECRUITMENT AND HIRING: “THE HUMAN CHEMISTRY”-FACTOR

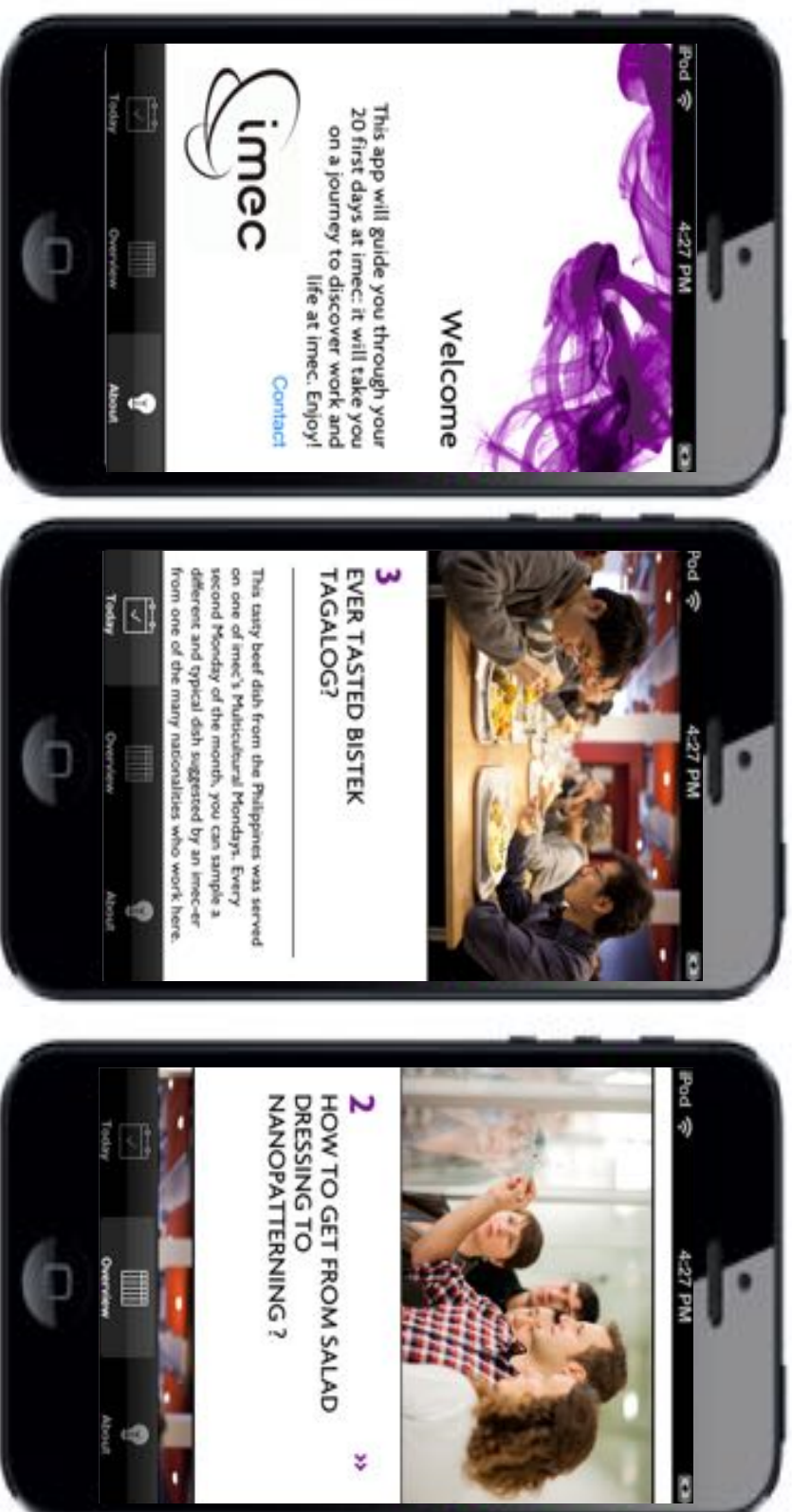
- Importance of “fit”:
person-job, person-team, person-manager,
person-organizational culture, ... and work-life balance



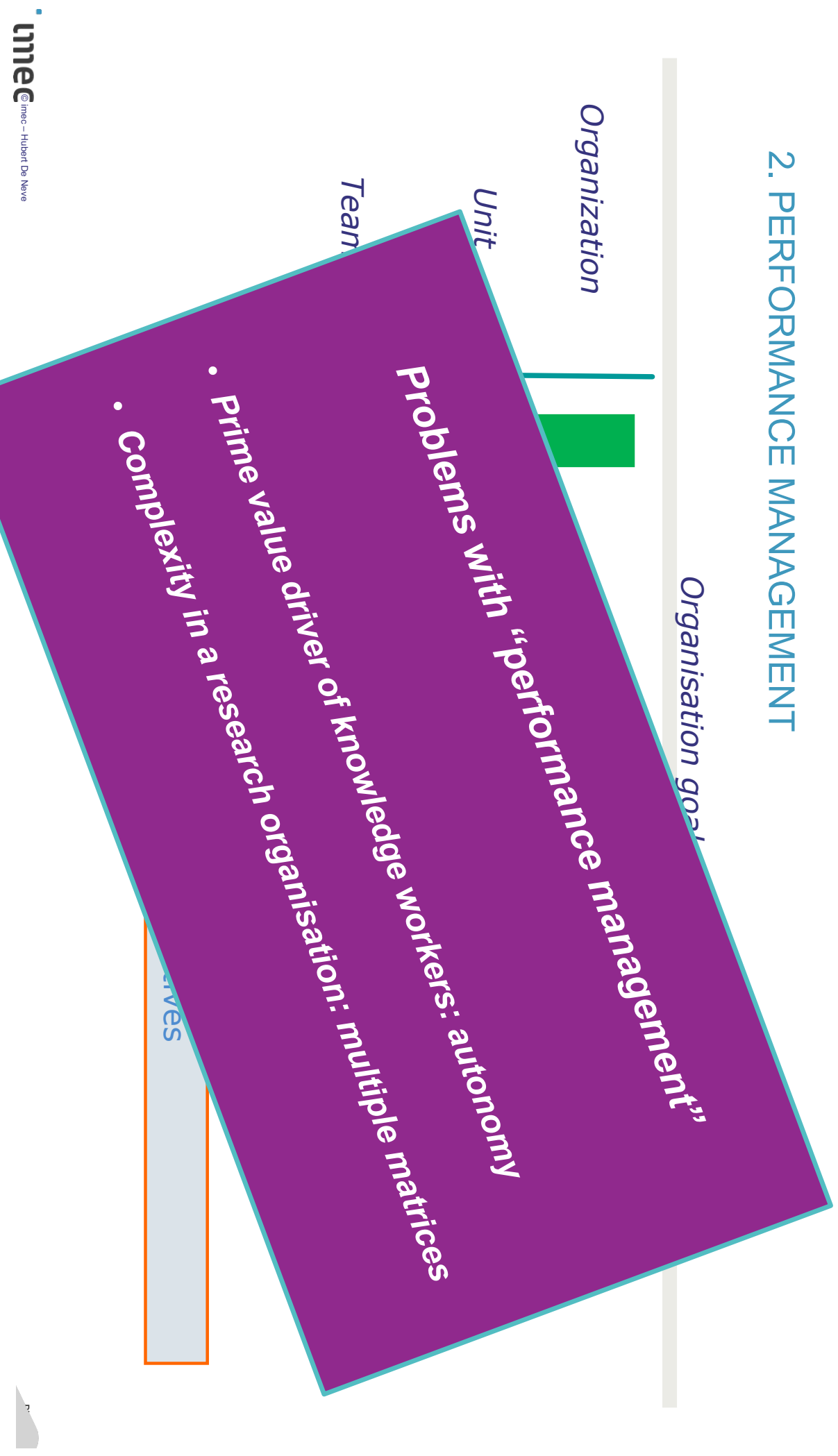
- The magic of “onboarding”:
between contract and start – day one – time-to-productivity –
integration

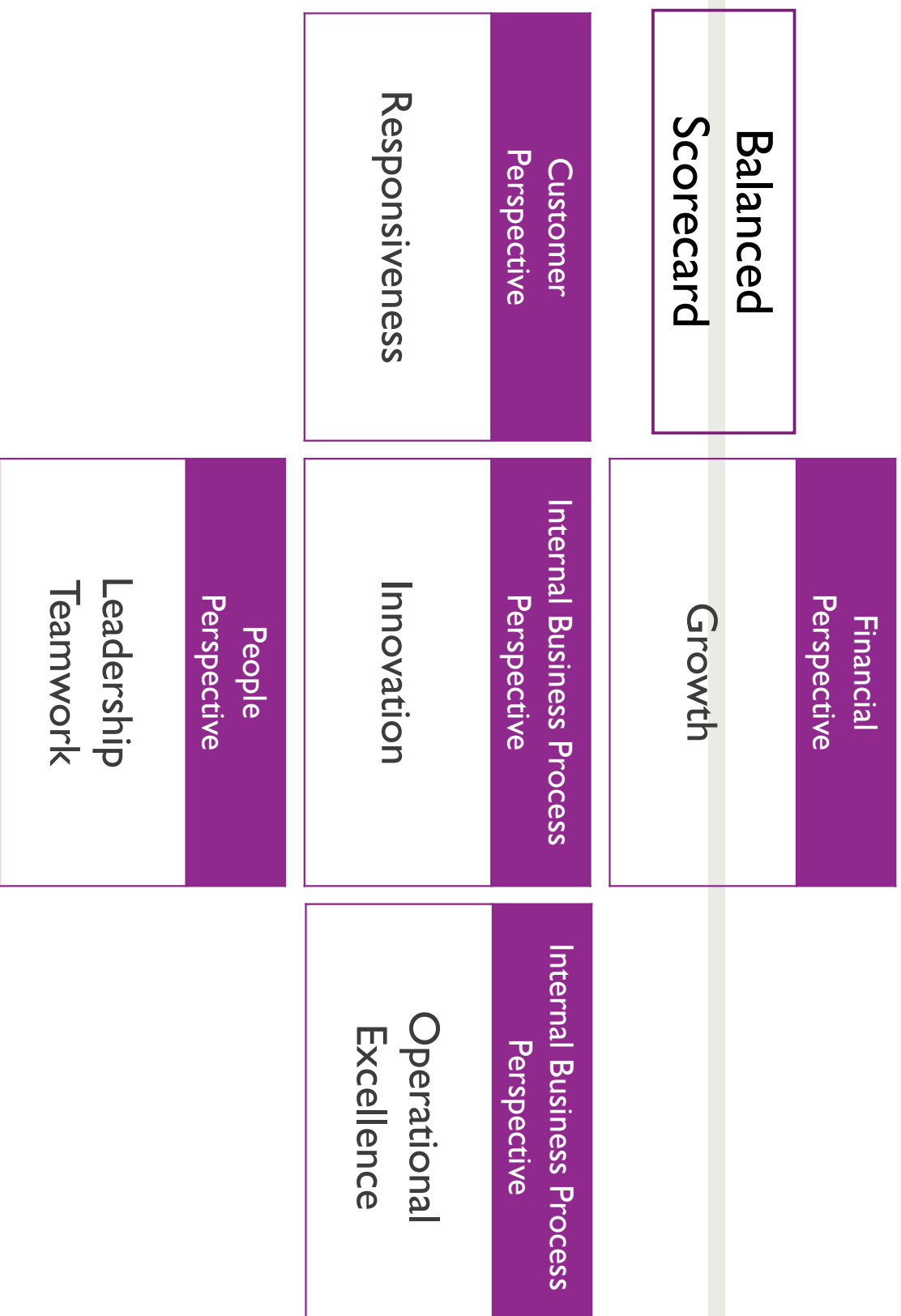
imec
in 20 days

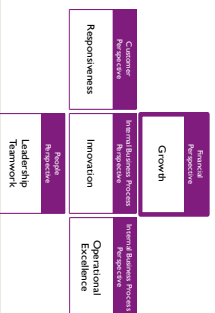
imec in 20 days - app



2. PERFORMANCE MANAGEMENT



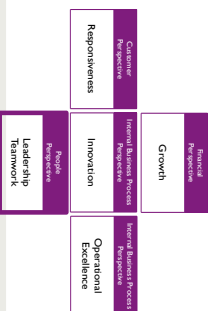




IMEC
Growth



Headlines / Goals	Objectives / Actions
Increase IMEC's leadership position, impact, and R&D market share in nanotechnology	- Adapt our business model for a new era of strategic partnerships in CORE CMOS that increases value for leading IDM, Foundry, Equipment and Materials suppliers - Increase our partnerships in Smart Systems and Energy business lines; successfully launch imec's iLAB program (with partnerships in the bio-pharma industry) and imec's PV Innovation Initiative in Flanders. - Improve our product marketing effectiveness, with special attention to value propositions and re-inforce imec's regional approach to markets, optimizing collaboration and complementarity. - Increase imec's participation in public funded projects that are strategically aligned with imec's business lines - Achieve growth targets set forth in imec's services business plan
Realize a long term break even by balancing our budget	- Meet 2014 budgeted revenue target and operate within the boundaries of budgeted expenses - Strengthen focus on spin-off creation (target: 2 for 2014) - Implement measures for cost containment by critically questioning the added value of activities and spending - Increased efficiency of resource deployment, stopping non-critical activities - Implement P&L accounting for all imec Business Lines down to project level



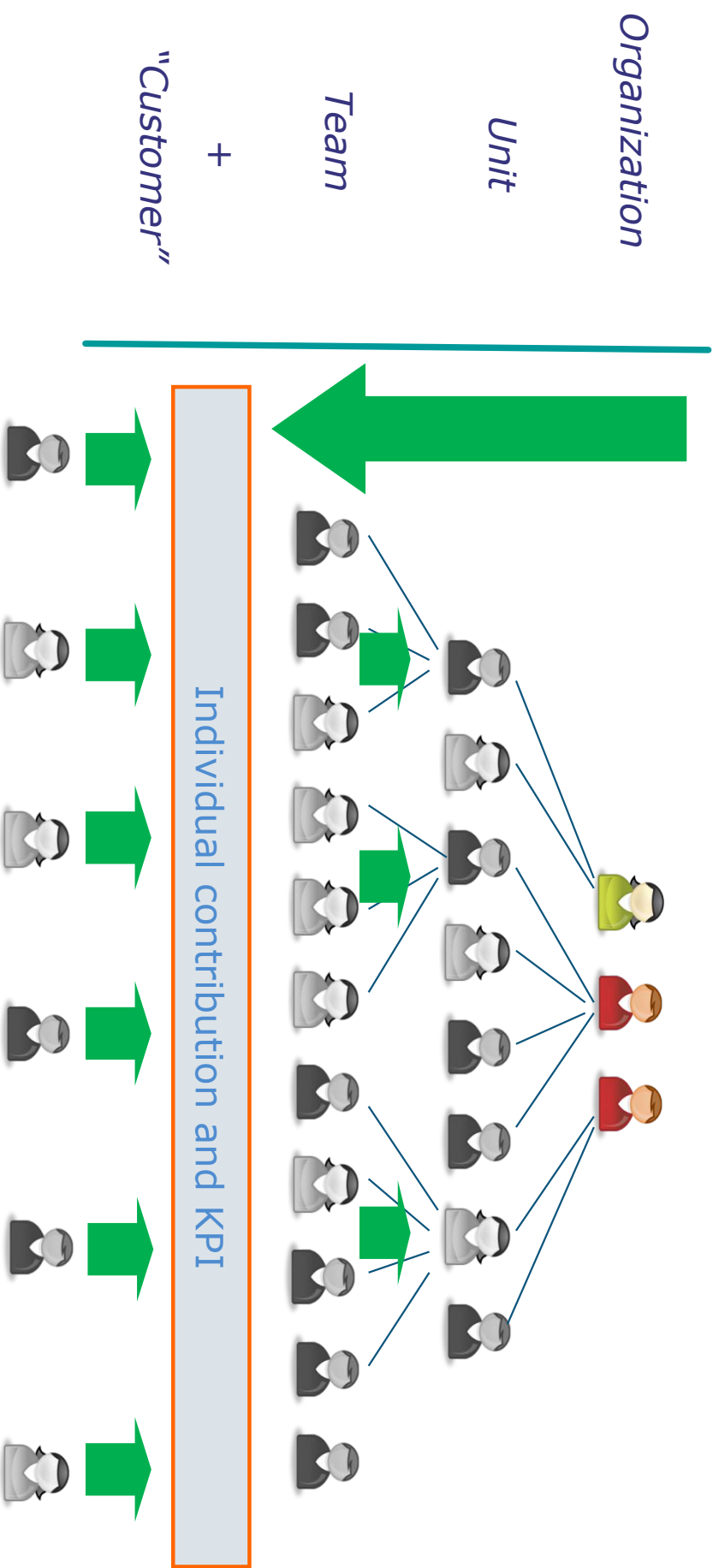
IMEC Leadership and Teamwork



Headlines / Goals		Objectives / Actions
One imec		- Establish connectivity and collaboration across all layers, units, sites, countries; further enhance the connectivity in the R&D community. Strengthen the imec international organization, through identification of roles & responsibilities and contribution, and by specifying the unique added value of each entity.
Value based leadership		- Strengthen imec's leadership effectiveness for employee engagement: ensure effective roll-out of the imec 2014 leadership program with full management support. - Take appropriate action(s) for increasing effectiveness of (people) managers - Continue imec's commitment for "Corporate Social Responsibility" - Further deploy people practices for talent growth and career development - Successful implementation of imec Academy, in line with business strategy and needs
Agility		- Improve imec readiness and capability for coping with strategic changes and better addressing critical needs, with special attention for internal mobility and re-allocation of employees - Strengthen IMEC's resilience to take up challenges and solve problems - Further improve imec leadership through effective communication and presentation skills, delegation and empowerment - Ensure appropriate attention and care for workload management and employee well-being.

PERFORMANCE MANAGEMENT: TWO-WAY COMMUNICATION

Organisation goals, objectives & KPI



© iméc – Hubert De Neve

3. LEARNING



*imec*academy

www.imec-academy.be

- ▶ *Imec Academy – learning for excellence*
- ▶ *Classroom, e-learning and immersion programs for industry and academia*
 - ▶ *On-demand & scheduled top courses & seminars*
- ▶ *Schools for biomedical systems, semiconductor technology, smart systems and business & leadership*
- ▶ *World class expertise focused on hands-on applications*



My IAS-based Learning



Getting Certified



Quality



Return and Reuse

My learning - preview

No assigned training

ESSENTIAL VERIFICATION WITH SYSTEMVERILOG AND UVM

4-8 MAY 2015

Learn to apply the system level verification based synthesis and simulation



Our activities



Operations, Business and Leadership



Semiconductor Technology



Smart Systems

STARTING

Elementary system architectural principles

ENGINEER

In the laboratory

System co-simulation

MANAGER

Of a team

Operating and maintenance costs

Enroll for training

- Operations, Business and Leadership
- Semiconductor technology
- Discrete systems
- Smart systems
- Train to start



Castrol



Colson



Intel



Online Courses

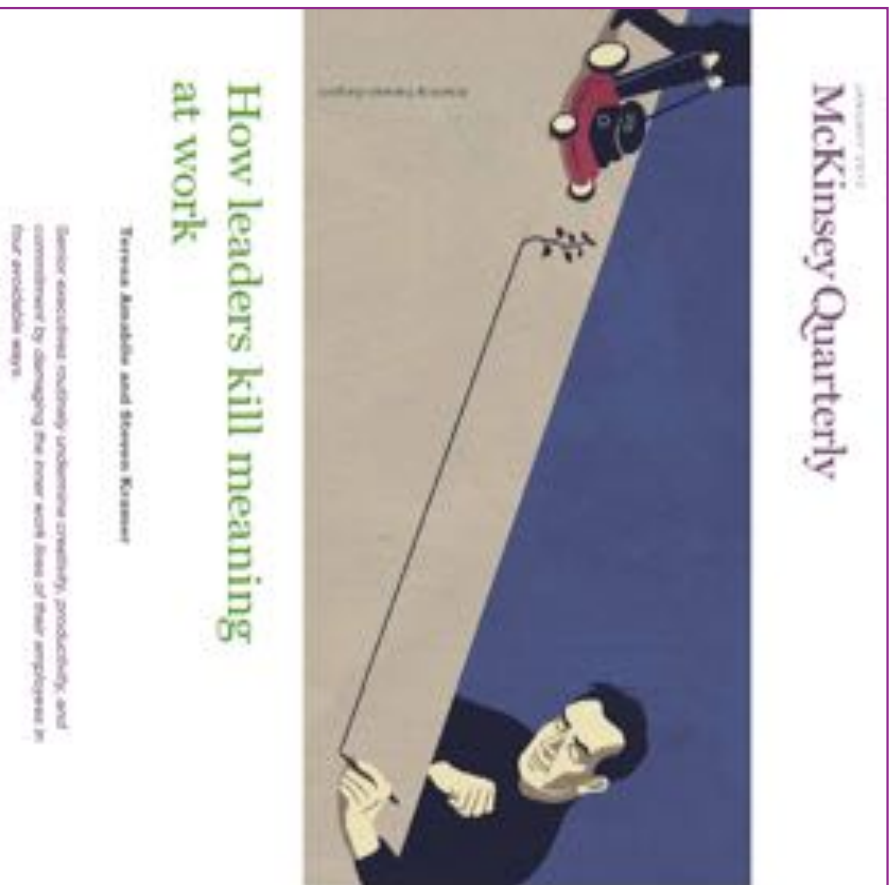
Suggested events

Microscale device physics
Fracture Level Modeling (FLM 2.0) using SystemC

Suggested online courses

Modeling techniques: Materials and structures for nanoelectronics and bio-applications - 2014
Basic and advanced solid state physics for engineers - 2014-2015
Modeling techniques: Devices and circuits for nanoelectronics - 2014
Use of Junction Valley Filling software architecture for X-ray Memory for silicon Technology Development

4. LEADERSHIP DEVELOPMENT



1. Four major risks and pitfalls

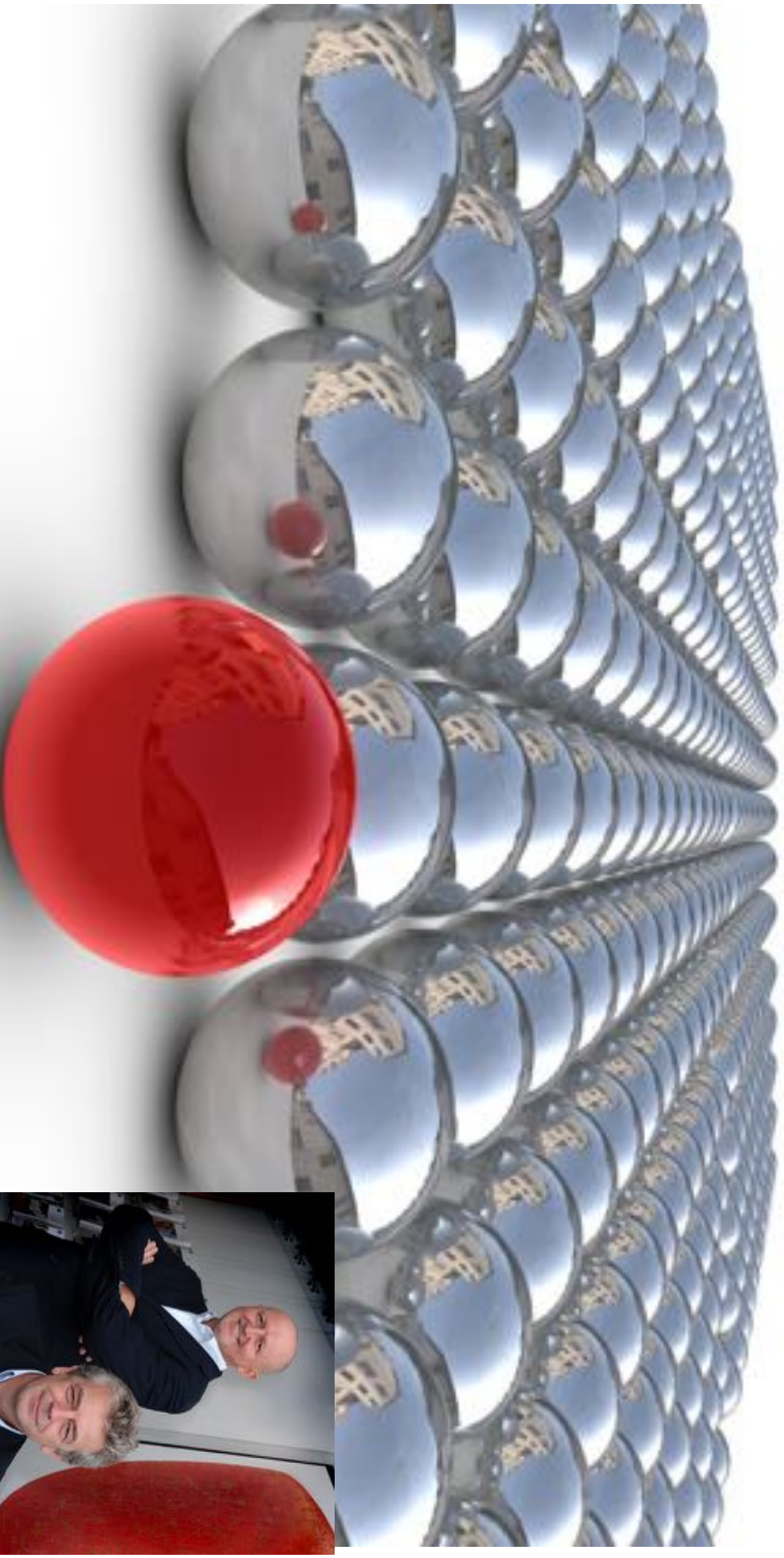
- Signals of 'mediocrity'
- SADD: 'Strategic Attention Deficit Disorder'
- 'Corporate Keystone Cops'
- BHAGs: "Big Hairy Audacious Goals" (Collins & Porras, HBR, May 2011.)

2. Avoidable pitfalls

- Transparent, consistent communication
- Remembering the early days of the "trenches"
- Alerts for disconnectedness

3. Leadership for engagement

- X-model
- Engagement survey results per team
- 360° -feedback



“Why should anyone be led by you ?”

Rob Goffee & Gareth Jones



5. JOBS (ROLES) AND CAREER LADDERS – MOVING TO A CAREER LATTICE

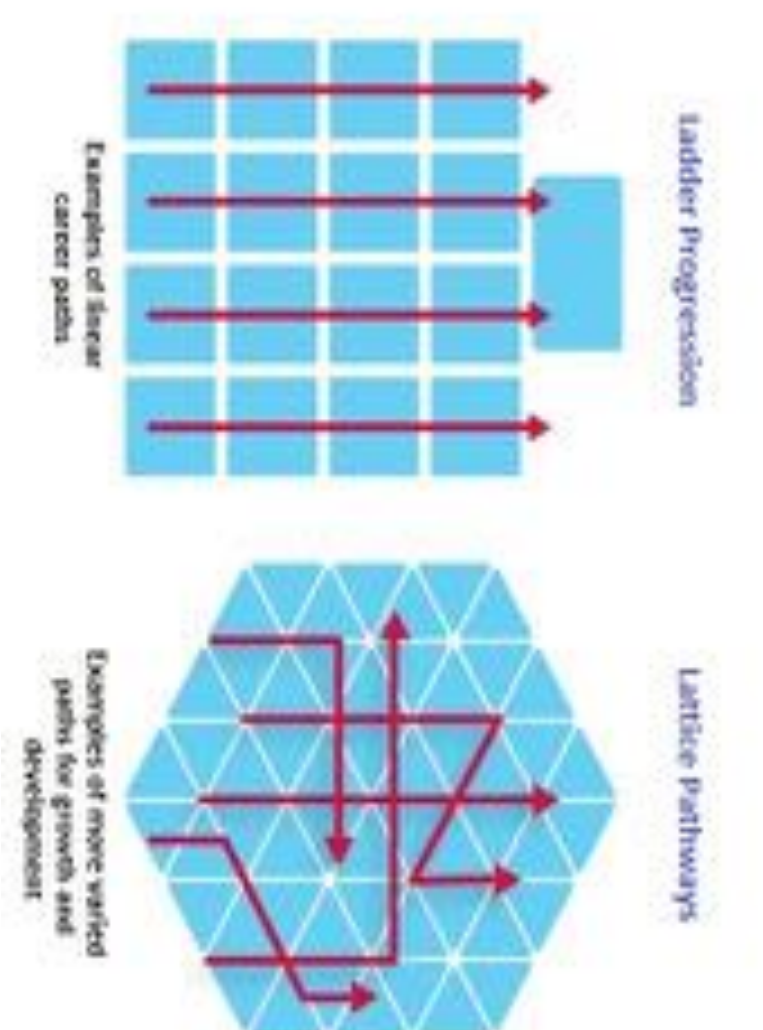
Two (parallel) career ladders at imec

LADDER	FOCUS
Individual Contributor	Emphasis on individual contributions or own expertise, scientific or non-scientific.
Management	Emphasis on managing staff and research programs.



When switching from one to another ladder, the focus will change and other skills are tapped.

FROM “LADDER” TO “LATTICE”



Source: www.deloitte.com

6. PERSONAL GROWTH AND DEVELOPMENT

