



**IPACSO**  
CYBER SECURITY

**Cybersecurity Innovation Bootcamp**  
July 14<sup>th</sup>, 2015

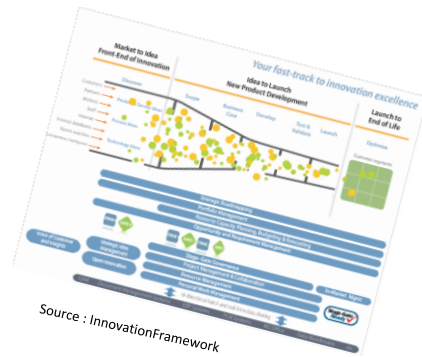
 Ulrich Seldeslachts  
LSEC – Leaders In Security  

## Setting expectations






- highly interactive workshops for Cyber Security and Privacy Innovators intended to :
  - to guide innovators with practical advice, market support and information
  - support the development of their business case
  - motivate going to market
  - provide for networking amongst peers (sharing ideas and experiences, finding each other in the purpose)
  - field test the Innovation Framework under development
- Discover and promote starters going further (IPACSO website, innovation awards, ...)
- outputs from the 1st iteration training program feeding into a finalised training program (supporting material)

# About IPACSO



## “Innovation Framework for Privacy and Cyber Security Market Opportunities”

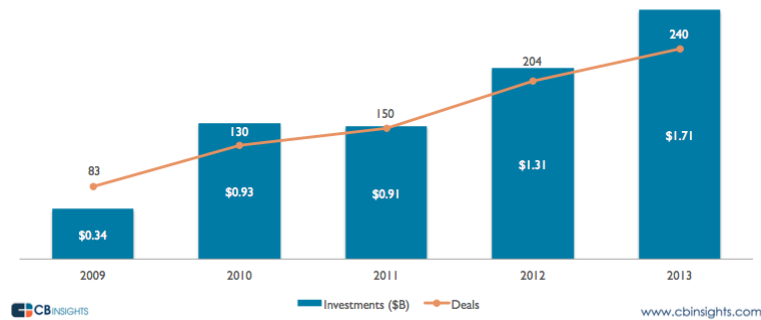
develop a structured knowledge and decision-support innovation framework for identifying, assessing and exploiting market opportunities in the privacy and cyber security technology space. ...





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## Demand for Trustworthy ICT – Security Industry

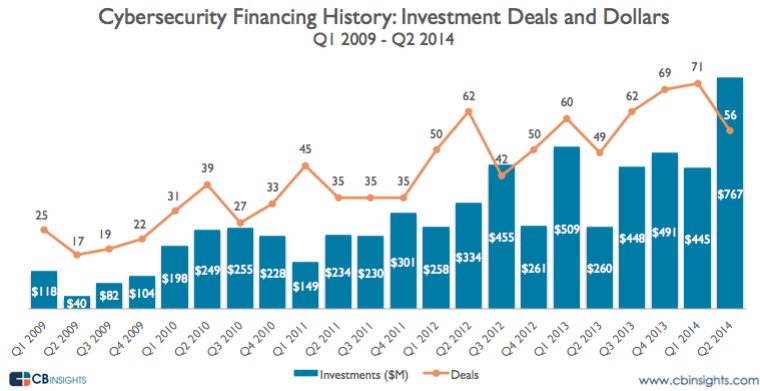
- Cybersecurity Industry Report – \$5.2 Billion Invested Across 807 Deals Over the Past Five Years)




Cybersecurity Financing History: Investment Deals and Dollars  
2009 - 2013



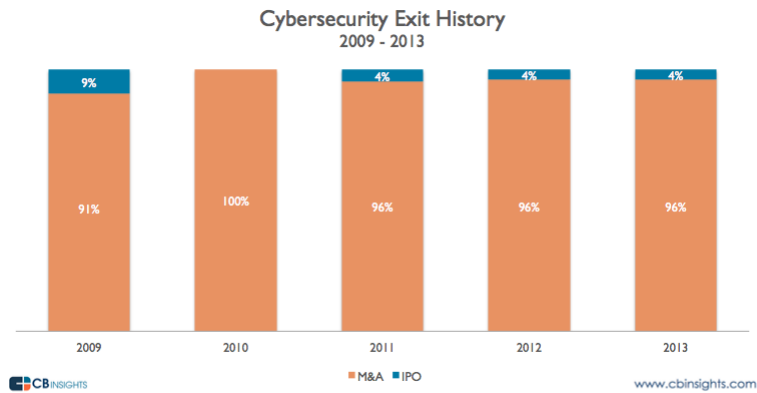

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## Demand for Trustworthy ICT – Security Industry



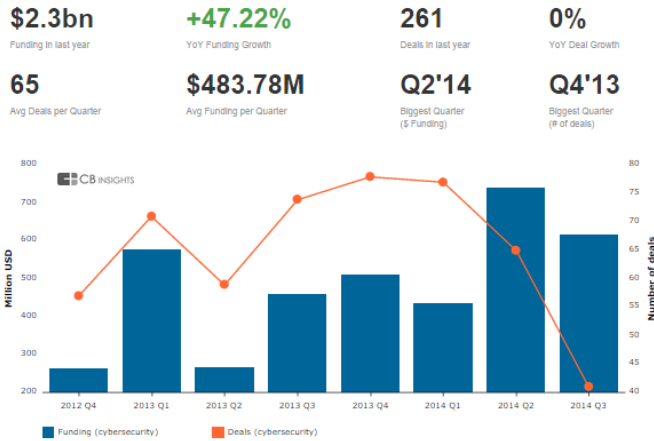

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## Demand for Trustworthy ICT – Security Industry




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## Demand for Trustworthy ICT – Security Industry



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## Global Consolidation – Security Industry

### Top Acquirers in Cybersecurity

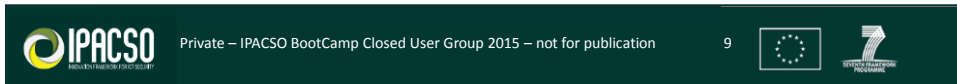
Rank	Investor
1	Google
1	McAfee
1	Symantec
4	Cisco Systems
5	VMware
6	EMC
6	IBM
6	Trustwave



www.cbinsights.com

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# Innovative Cyber Security Product

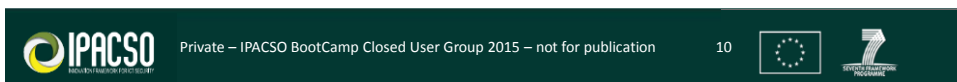


## Device Monitor for Android

Botnet hunting on Android mobile devices

[ales.cernivec@xlab.si](mailto:ales.cernivec@xlab.si), @alescernivec

ECSPI Awards: additional material to support the nomination



## Device Monitor features



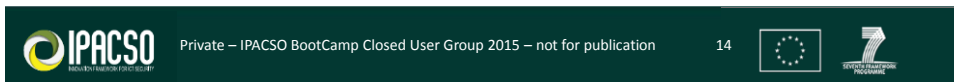
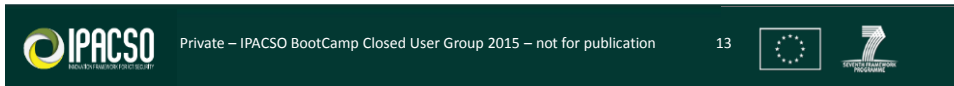
- Network sensor on mobile device queries **the appliance** for
  - URL status
  - list of rogue IPs which is provided by the appliance
  - Sync detections
- On Wi-Fi networks:
  - Email clients:
    - ✓ rogue URLs **recognized, access prevented**
  - Other applications:
    - ✓ rogue destination IPs, **recognized** when connection is made
    - ✓ Connections dropped if so configured on the Suricata IDS
- On Mobile networks:
  - Email clients:
    - ✓ rogue URLs, **recognized, access prevented**
  - Other applications:
    - ✗ **rogue destination IPs cannot be recognized nor access prevented** since MNO's proxy is visible as destination IP

## Available on Google Play Store

- <https://play.google.com/store/apps/details?id=eu.acdc.xlab.devicemonitor>
- Demo videos: <http://x.k00.fr/zmprk>

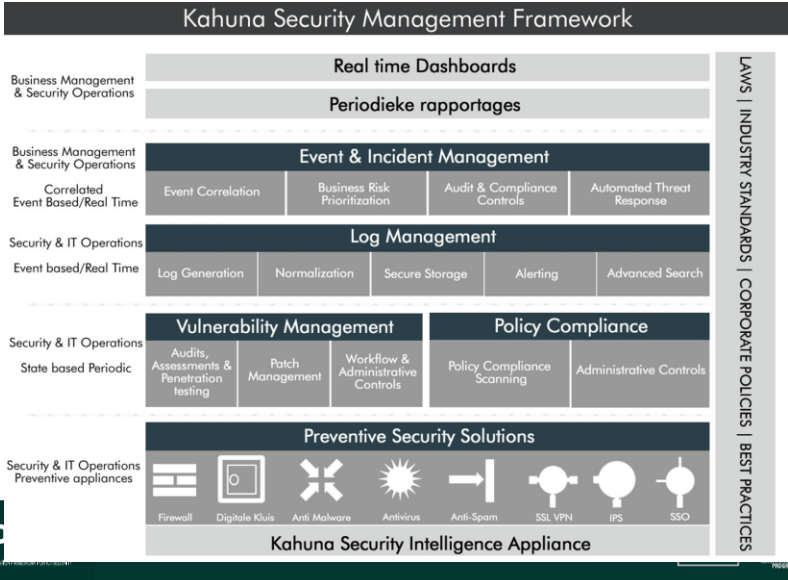


# Innovative Cyber Security Service

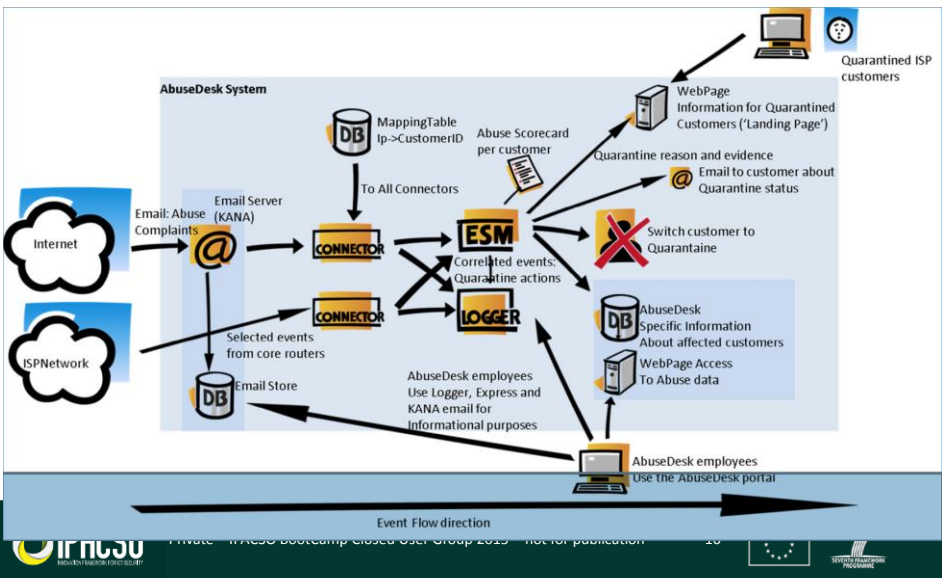




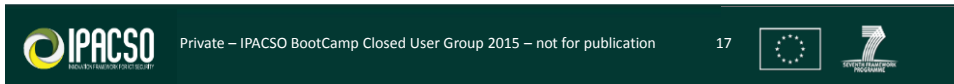
## What we do



## Schematic overview



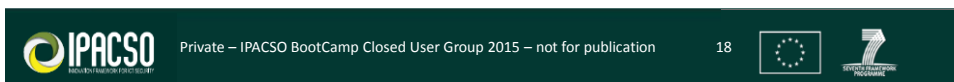
# Innovative Cyber Security Company



## G DATA USB KEYBOARD GUARD and BadUSB

**BADUSB - ON ACCESSORIES THAT TURN EVIL**      **PRESENTED BY**  
Karsten Nohl & Jakob Lell

USB has become so commonplace that we rarely worry about its security implications. USB sticks undergo the occasional virus scan, but we consider USB to be otherwise perfectly safe – until now.

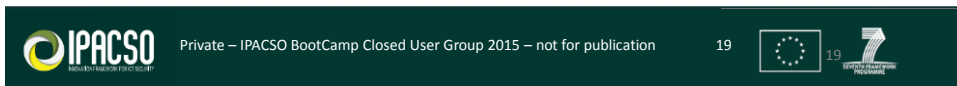


## BadUSB – What is it?

USB devices generally have a good reputation - despite the fact that, since the attacks by the Conficker-worm, the majority of users have been aware that even USB data media can represent a risk for computer systems in both a company and a private environment.

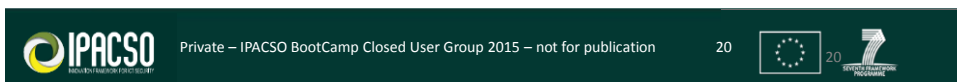
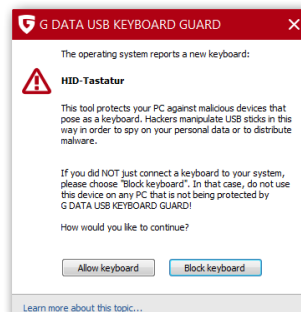
In August 2014, two researchers from Berlin-based Security Research Labs (SRLabs) went a step further, with a new attack method named 'BadUSB'. At the Black Hat hacker conference in Las Vegas, they demonstrated the manipulation of USB device firmware, which is included in a similar format in every USB device. If the implementation of this proof of concept gets out into the open and reaches the 'bad guys', any USB device from a mouse or printer to a digital camera could be turned into an attack vector in future!

At the end of September 2014, at DerbyCon, two other researchers published/showed the source and attack code to the public in-the-wild!

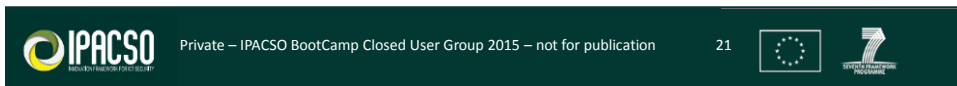


## G DATA USB KEYBOARD GUARD – Where is it?

- Free stand alone tool to download now (can be combined with other security software)  
<https://www.gdatasoftware.com/en-usb-keyboard-guard.html>
- Will be integrated into our security products (beginning of next year)

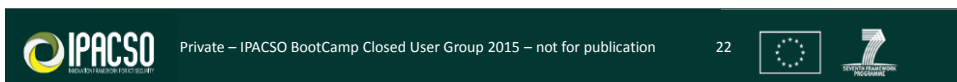


# ICT Security Innovation

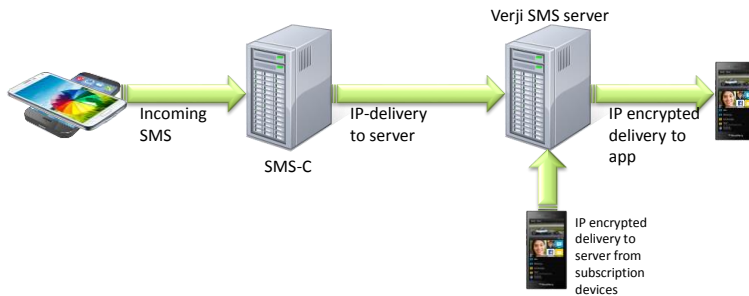


## What is Verji SMS?

- A solution to protect Smart Devices from infections using SMS as an infection method
- An SMS cannot be dangerous, can it?
  - An SMS can contain code to infect your smart device, and is invisible to the user
  - They are used for:
    - Infecting your device invisibly, making it possible to see all activity and content
    - Seeing where you are at any given time
    - Destroying your phone, or leaving it offline
    - Military / Government surveillance
    - Industrial espionage
    - Financial fraud
    - And much more
- We have the **ONLY** solution on the market that protect you against all this.



## Standard reception of SMS

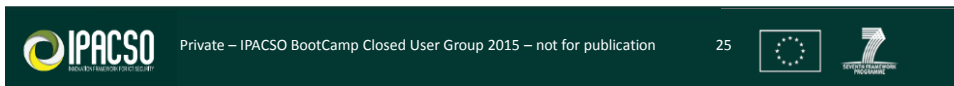


The SMS is delivered to the Telco's SMS-C system. The SMS-C will not deliver directly to the subscriber, but deliver the messages to your Verji SMS server for cleaning. After cleaning, the messages that has been cleaned will be encrypted and delivered to the handset using TCP/IP.

## Encryption options

- Encryption can be done in different ways in this system depending on the customer's needs:
- All traffic between the Smartphone app and the server is always encrypted.
  - Encryption, standard usage
    - All traffic is encrypted with 256 bit AES, all messages are logged on server, messages are re-encrypted before delivery to other Smartphone devices, sent as standard SMS's to other devices
  - Encryption, end to end
    - As long as a message is designed to go to another Smartphone device on the server, the connection is set directly between the two devices, nothing is logged on the server. To a non subscription device it is sent unencrypted.
  - Encryption, internal version.
    - As previous example, but here you can only send to other devices within the corporation, not to any external device.

# Privacy or Cyber Security Innovator



IID brings addresses this challenge with secure and scalable solution based on existing hardware

IID Enabled phone

The diagram illustrates the benefits and market opportunities of IID. On the left is a Samsung smartphone labeled 'IID Enabled phone'. Three arrows point from the phone to the right, representing benefits: 'Strong Authentication' (with a shield icon), 'Cost effective' (with a Euro coin icon), and 'Simplicity' (with a smiley face icon). On the right, under the heading 'Market Opportunities', there are icons for Government (a dome), Finance (a classical building), Corporate (a skyscraper), and Cloud (a cloud). At the bottom right, there are icons for a dollar sign and an Apple logo.

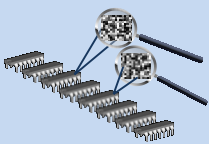
Market Opportunities

Government Finance

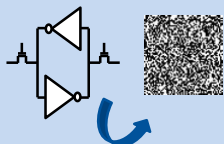
Corporate Cloud

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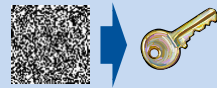
SRAM PUFs provide an excellent root of trust



**Due to deep sub-micron process variations ICs are intrinsically unique**



**Start-up SRAM values establish a unique and robust fingerprint**



**The fingerprint is turned into a secure secret key which is the foundation of enhanced security**

**PUF properties**

- Strong entropy, high randomness keys
- Unclonable, tamper-proof
- No keys at rest
- Enables independent Root-of-Trust

**IID Technology Benefits**

- Based on SRAM available in every device
- No custom design needed
- Tested and vetted for defense markets
- Proven, robust and scalable technology
- Available in mobile phones, USB dongle
- Protected by over 20 patents

## Now: Strong Authentication with IID in flagship phones



**Intrinsic-ID IP**

Unitialized SRAM data within the mobile

➔




Enabling high quality, securely stored PUF-based Keys

Combining mobile OEM and Intrinsic ID's government vetted technology

Strongest security on mobile device

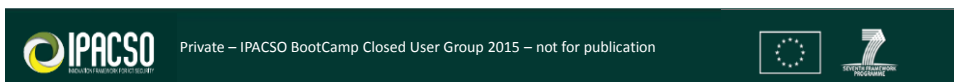
*Natively implemented in flagship Android phones*

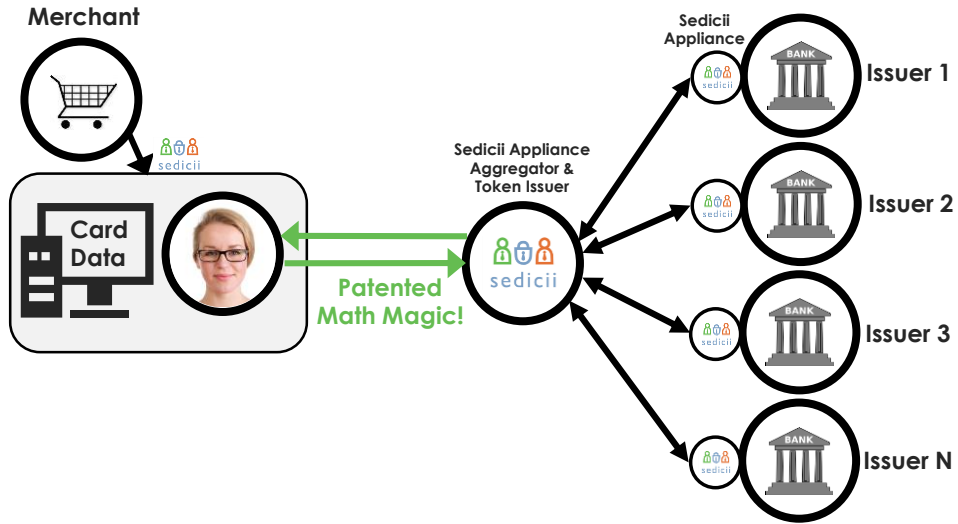
**Available: Q4-2014**



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# Innovative Privacy Company





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# Why IPACSO (The Need)

- Comparative market strength in Europe /Globally
- Supporting ICT security industry, privacy innovators, cyber security innovators
- **EU Objective → Cybersecurity strategy & Digital Agenda**
  - Analyse the innovation process in privacy and cyber security technologies, identifying the obstacles and propose improvements; identify market conditions and economic
- **Widen take-up of research outcomes**
- **Unlock the market restrictions, reveal the incentives to create a functioning cyber security market and increase the number of European spin offs**
- contribute to the EU SRA
- **increase the impact and commercial uptake of research results via innovative financial instruments & funding methods as well as new business models. (NISP WG3 Objective 3)**



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## IPACSO Focus

### Targeted to:

Cyber Security & Privacy  
Innovators and  
Entrepreneurs



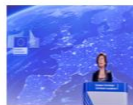
Business Brokers & PE



Cyber Security & Privacy  
Researchers



Policy Makers  
& Research Agenda



### Support Offering

- Innovation Support Tools/Guidance
  - Innovation Framework for Cyber Security & Privacy
  - Innovation methodologies, applied to ICT Security
  - Innovation Use Cases & Best Practices
- Cyber Security & Privacy Knowledgebase
  - Market Assessment
  - Market and Regulatory Environment Analysis
  - Technology & Research Spectrum
  - Economic Incentives
- Training & support
  - Innovation Bootcamps and Framework packages
- Innovation Awards
  - Marketing of ICT Security Innovators – publishing cases/case studies
  - Representation towards Private Equity industry



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## For Innovators

- Innovation Management Support Tools
  - Provide access to State of the Art Innovation methodologies, applied to ICT Security
  - Innovation Use Cases & Best Practices
  - Innovation Framework for Cyber Security & Privacy
- Marketing Support
  - Provide access to Cyber Security & Privacy Market Assessment
  - Market and Regulatory Environment Analysis Support
  - Cyber Security & Privacy Market knowledgebase
  - Cyber Security & Privacy Technology & Research Spectrum
- Facilitating identification of Inhibitors and Incentives
  - Cyber Security & Privacy Economic Incentives
  - Access support to State of the Art Cyber Security & Privacy Research
- Training & support
  - Innovation Bootcamps and training packages
  - Access to Brokers and Corporate Development Support
- ICT Innovation Awards
  - Marketing of ICT Security Innovators – publishing cases and case studies
  - Representation towards Private Equity industry



Source : Innovationmanagement.se



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## The Framework



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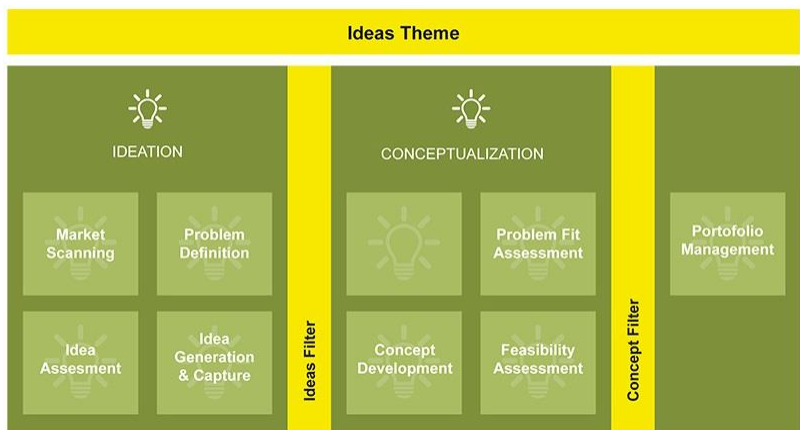
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- Market Analysis –
- Trends & Challenges
  - Market Overview
  - Science & Technology
  - Policy Framework & Legislation
- Economics –
- Cyber-Security
    - Introduction & Basics
    - Research Field
    - Decision Models
    - Indicators & Metrics
  - Privacy
    - Introduction & Basics
    - Research Field
    - Preference Measurement
    - Privacy Metrics
  - Economic Incentive Schemes



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- Market
- Innovation
- National and EU instruments / Other material
- Framework?
- Lean Start-up?



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# Business Models

1. Cost – Benefit Tradeoff
2. Business Case for Cyber Security
3. Instrument impacting on Incentives of Market Participants

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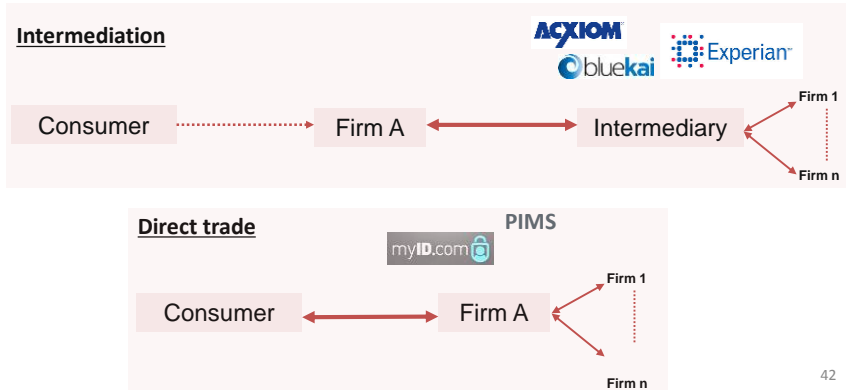


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## The Privacy Business Model

### Dissecting Transaction Structures



## The Privacy Business Model

Price-setting Models for Personal Data

### Price-setting Mechanisms

= Mechanism design to match sellers and buyers of personal data

**Take-it-or-leave-it (TIOLI), e.g. price discounts**

#### Auction

= Mechanisms differ on who sets the price for personal data, this gives rise to differences in uncertainty (about the price).

One of the most common mechanisms is TIOLI

## The Privacy Business Model

Data protection can be a competitive advantage under the following conditions:

The product comparison is not too complex

There are no price differences for the product offered by different firms

The data collection practices *are obvious* (!)

Personal data is verifiable and is in fact verified (giving rise to privacy concerns)

Price-setting mechanism is TIOLI

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## Lean Startup



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Build it, and they will come...  
 (good products = big bucks)  
**Right?**

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Startup is more than product alone

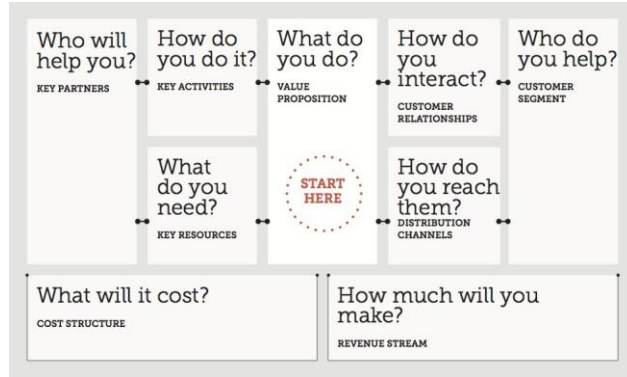


What do you need for a successful business?

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# Tool: Business Model Canvas



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Market	Technology
<ul style="list-style-type: none"> <li>Who is your target audience, and what characteristics do they possess?</li> <li>How can you reach this target audience?</li> <li>What part of this target audience is likely to buy your product?</li> <li>At what price are they willing to buy this product?</li> </ul>	<ul style="list-style-type: none"> <li>What technology is needed to turn this concept into a full marketable product?</li> <li>What technological constraints are there?</li> <li>Which technologies do not yet exist?</li> <li>How easy are technologies that do exist to come by?</li> <li>What is the cost of these new and existing technologies?</li> </ul>
Organization	Financial
<ul style="list-style-type: none"> <li>Which organizational structure is needed to bring this concept to market?</li> <li>Do we already have the right structures in place?</li> <li>What is the cost of setting up these new structures?</li> <li>Do we have the right corporate culture for bringing this concept to market?</li> <li>Do we have the right people to transform this concept into a real product?</li> <li>What is the cost of retraining existing staff, or the cost of hiring new staff with regards to this new product?</li> </ul>	<ul style="list-style-type: none"> <li>NPV – Net Present Value</li> <li>ROI – Return on Investment</li> <li>IRR – Internal Rate of Return</li> </ul>

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## EXAMPLES OF TRENDS IN THE PACS ENVIRONMENT

P Political	E Economic	S Sociological	T Technological	L Legal	E Environmental
<ul style="list-style-type: none"> <li>Geopolitics and national security is increasingly influenced by technology developments (and security concerns).</li> <li>Cybercrime funded by governments or corporations.</li> <li>Conflicts of interest within national/international intelligence agencies.</li> </ul>	<ul style="list-style-type: none"> <li>Investment community is investing heavily in security innovation.</li> <li>Economic incentives and disincentives have a strong influence on PACs innovation.</li> <li>A need exists to hold PACS vendors more accountable for the security/privacy risks/costs that are incurred by their customers.</li> <li>The sharing of security information among organizations receives more attention.</li> </ul>	<ul style="list-style-type: none"> <li>Data is increasingly stored in the cloud.</li> <li>Consumers are increasingly aware of security/privacy issues, but are not yet willing to pay for security tech.</li> <li>Increasing trust is being placed on ICT vendors.</li> <li>Bring-Your-Own-Device.</li> <li>Notion of 'online identity' changing.</li> <li>Movement from "offensive security" to "active defense".</li> </ul>	<ul style="list-style-type: none"> <li>Infrastructure revolutions create new security/privacy threats.</li> <li>New macro-ICT technology concepts.</li> <li>Big-Data as a security enabler.</li> <li>Big-Data as a privacy threat.</li> <li>Evolving cyber threat landscape.</li> <li>Increased M2M communication may threaten privacy.</li> </ul>	<ul style="list-style-type: none"> <li>Movement from compliance-based attitude towards genuine fear of security threats.</li> <li>General increase in security related policy and regulation - particularly in relation to data protection regulations.</li> <li>Societal/Legal notions of personal security and privacy are being re-evaluated in line with technology changes.</li> </ul>	<ul style="list-style-type: none"> <li>Geographical advantages exist with respect to PACs innovation.</li> <li>A significant shortage of skilled PACs personnel exists.</li> <li>Links between energy and resource sustainability, and security/privacy needs are increasingly becoming commonplace.</li> </ul>

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## CHECKLIST PESTLE ANALYSIS

P Political	E Economic	S Sociological	T Technological	L Legal	E Environmental
<ul style="list-style-type: none"> <li>Political stability</li> <li>Trade regulations</li> <li>Taxation</li> <li>Industrial safety regulations</li> <li>Product labeling requirements</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>Labor cost</li> <li>Interest rate</li> <li>Inflation</li> <li>Specific industry factors</li> <li>Distribution trends</li> <li>Monetary issues</li> <li>Economy trends</li> <li>General taxation</li> <li>Unemployment rate</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>Demographics</li> <li>Lifestyle trends</li> <li>Consumer attitudes and opinions</li> <li>Leisure interests</li> <li>Ethical issues</li> <li>Education</li> <li>Fashion and role models</li> <li>Buying access and trends</li> <li>Advertising and publicity</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>Research funding</li> <li>Recent technological developments</li> <li>Impact on cost structure</li> <li>Rate of technological diffusion</li> <li>Maturity of technology</li> <li>Consumer buying</li> <li>Licensing, patterns</li> <li>Technology legislation</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>International legislation</li> <li>Anti-trust law</li> <li>Intellectual property protection</li> <li>Consumer protection and e-commerce</li> <li>Data protection</li> <li>Health and safety law</li> <li>Etc.</li> </ul>	<ul style="list-style-type: none"> <li>Environmental changes</li> <li>Climate change</li> <li>Laws regulating environment pollution</li> <li>Air and water pollution</li> <li>Recycling</li> <li>Waste management</li> <li>Attitude towards renewable energy</li> <li>Etc.</li> </ul>

# IPACSO Methodological Approach



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## Underpinning the IPACSO Framework

- **PACS Knowledge Base**
  - Market Analysis
  - Innovation Models/practices
  - Economic Incentives
- **Identifying and Connecting European Cyber Security & Privacy Innovators**
  - Workshops, conferences
  - Active participation in activities : NIS, CPDP, Infosecurity, CSP Forum ....
- **Promoting Cyber Security & Privacy Innovations**
  - Promoting IPACSO through Cyber Security & Privacy Innovations
- **Training Bootcamp Program**
  - feed best practices back into the community
  - Measure/ validate the take-up for the IPACSO Innovation Framework



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# Market



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## (Market) Opportunity



Source: AGC Europe, June 2014

- Drivers for M&A activity 2014-2015
  - Further consolidation – effective to drive shareholder value
  - Record amounts of “dry powder” for around \$ 1 trillion (committed, but not invested capital)
  - Macro-economic and political uncertainty, pent up demand from acquirers to close deals
  - Technology companies records levels of cash, some of the bigger ones holding over \$ 50 billion in cash & equivalents
- Markets :
  - Antivirus :
    - WW endpoint security market to increase at 7.6% CAGR, to reach \$ 11.6 billion in 2016
    - Corporate endpoint security market to reach \$ 5.1 billion by 2016
    - Within corporate market, security suites are forecast to grow at 12.7% CAGR to reach \$ 2.8 billion by 2016
    - Drivers for growth with consumers : convert from free to paying, convert non security users
  - European Security :
    - Not about if, but when
    - Cyber security market to grow from \$ 95.6 billion today, to \$ 155.7 billion by 2019 with CAGR of 10.3% over 5 years
    - Drivers : cloud-based services, wireless, government mandates (regulations), cyber crime in public utilities
    - Fraud detection & prevention to double to \$7.5 billion by 2018 (from \$3.6 billion)
    - Personal and corporate data risk fuels mobile security, to reach \$14.4 billion by 2017
    - Managed security to grow 45% over next 5 years, driven by increase in volume, variety, complexity of threats and erasing network perimeters (BYOD)
    - Identities stolen – 493% increase from 2012
    - Cost of data breach increased 15% to average \$3.5 million in 2013



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# Opportunities for PaCS Globally

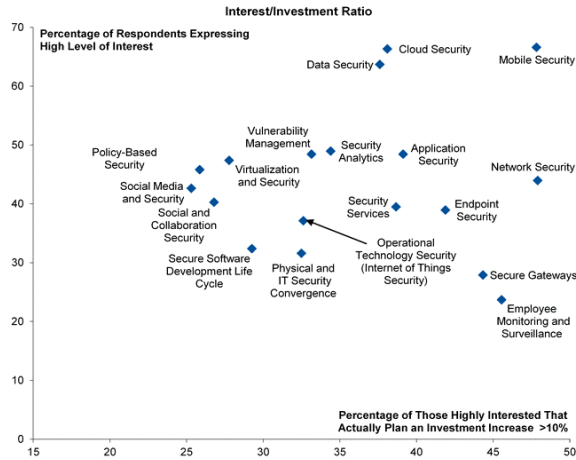



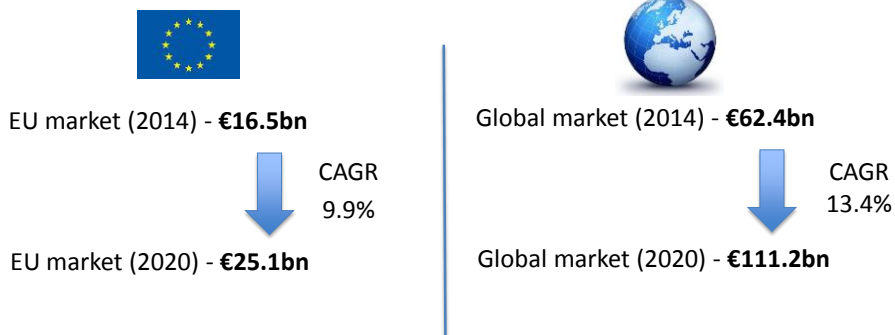


Figure 1.4 – PACs technology interest vs spending intentions (Source: Gartner)





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## PACs Market Growth



~26% share of global market at present  
 Decrease to ~23% predicted by 2020

Source: Frost and Sullivan (2014)


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## Growth Trend

	2013 (USD, \$bn)	2014 (USD, \$bn)	2015 (USD, \$bn)	2016 (USD, \$bn)	2017 (USD, \$bn)	2018 (USD, \$bn)	2019 (USD, \$bn)	CAGR 2013-19	Global market share (2014)
<b>North America</b>	37.4	41.2	44.7	48.5	52.6	57.1	61.9	8.5%	43.1%
<b>Europe</b>	23.2	25.0	26.9	28.8	30.9	33.1	35.5	7.2%	26.2%
<b>Asia Pacific</b>	14.8	17.0	19.4	22.2	25.3	28.9	33.0	14.1%	17.8%
<b>Middle East/Africa</b>	6.2	7.1	8.0	9.1	10.4	11.8	13.4	13.7%	7.4%
<b>Latin America</b>	4.5	5.3	6.2	7.3	8.6	10.1	11.9	17.6%	5.5%
<b>GLOBAL (TOTAL)</b>	86.1	95.6	105.4	116.2	128.1	141.3	155.7	10.3%	100.0%

Source: <http://www.researchandmarkets.com/reports/2820909/cyber-security-market-global-advancements>



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## Trends Driving PACS Growth

Driver	Sub-trends
<b>Increased Threats</b>	-More pervasive technology (mobile, IoT, Cloud) -Technology standardisation (e.g. CI -> SCADA) -Varied threat actors (small-time hacker, organised gangs, nation state level)
<b>Increased Regulation</b>	-e.g. Data Protection Regulations , NIS Directive, etc
<b>Increased Security Spending</b>	-Increased security outsourcing (small + mid-sized orgs) -Increased internal spend (large orgs)
<b>Increased Awareness in Organisations</b>	-Increasingly not just about compliance, more genuine fear of threats and security breaches.....
<b>Data Explosion</b>	Privacy Risk vs Security Opportunity?

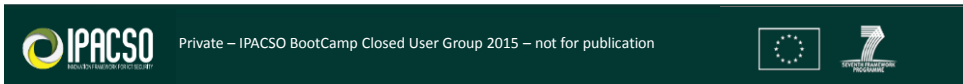


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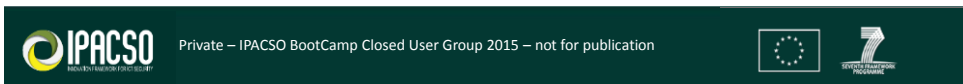
# PACS Segments

BY SECURITY TYPE	BY SOLUTION	BY SECURITY SERVICE
Network	Identity And Access Management (IAM)	Consulting
Endpoint	Risk And Compliance Management	Design and Integration
Application	Encryption	Risk and Threat Assessment
Content/Data	Data Loss Protection (DLP)	Managed Security Services
Wireless	Unified Threat Management (UTM)	Training and Education
Cloud	Firewall	
etc....	Antivirus And Antimalware	
	IDS/IPS	
	Security And Vulnerability Management	
	Disaster Recovery	
	DDOS Mitigation	
	Web Filtering	
	Etc...	



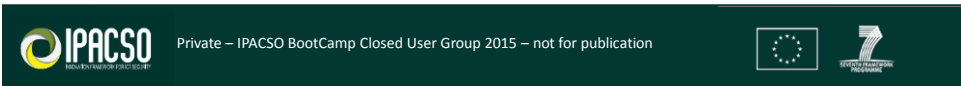
# PACS Segments

BY INDUSTRY VERTICAL	BY VALUE CHAIN ROLE (PACS SUPPLY SIDE)
Aerospace, Defence, And Intelligence	PACS VENDOR
Government (Excluding Defence) And Public Utilities	PACS SERVICE PROVIDER
Banking, Financial Services, And Insurance (BFSI)	ICT INTEGRATOR
Telecom & IT	ICT INFRASTRUCTURE PROVIDER
Healthcare	
Retail	
Manufacturing	
Others	
	BY INNOVATION ROLE
	“INNOVATOR”
	“ENABLER”
	“END-USER”
	“INFLUENCER”





# Concept Development Exercise: Mapping your ideas



## Opportunities for PaCS Globally

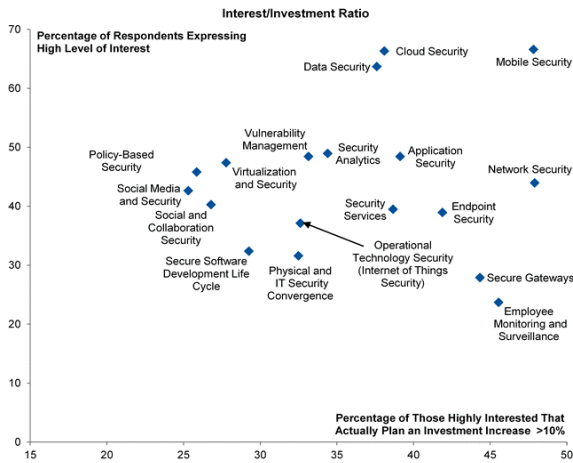


Figure 1.4 – PACs technology interest vs spending intentions (Source: Gartner)



## Segmentation by type (USA)

	2012 (USD, \$bn)	2013 (USD, \$bn)	Share of PACs market (2013)	YOY growth (%)
Integration Services	8.1	8.5	14.6%	5.2%
Firewalls (General + Next Gen)	5.4	5.8	9.9%	8.2%
Consumer Security Products	4.6	4.9	8.4%	6.0%
Identity and Access Management (IAM)	4.4	4.9	8.3%	10.0%
Consulting Services	4.4	4.7	8.1%	7.5%
Corporate Endpoint	3.4	3.7	6.3%	7.1%
Email Gateway	2.4	2.6	4.5%	7.2%
Web Filtering	2.0	2.1	3.6%	6.6%
Intrusion Prevention Systems	1.9	1.9	3.3%	2.5%
Security Information and Event Management	1.4	1.6	2.7%	11.2%
Vulnerability Assessment	0.9	1.0	1.7%	10.0%
Policy and Compliance Solutions	0.9	1.0	1.7%	9.9%
VPN	0.7	0.7	1.3%	2.9%
Proactive Endpoint Risk Management	0.5	0.5	0.9%	5.0%
Forensics	0.3	0.4	0.6%	21.0%
Security Device Systems Management	0.2	0.2	0.3%	-7.3%
Other Categories (2012, 2013)	12.1	13.8	23.7%	14.2%
	<b>53.6</b>	<b>58.3</b>	<b>100.0%</b>	<b>8.7%</b>

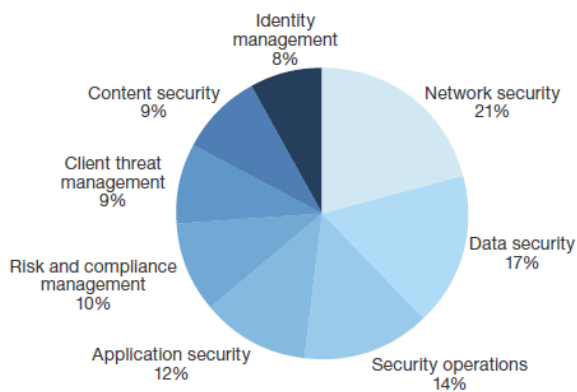


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## Security Spending

Percentage of Annual Security Budget – Which tech?



57% - want to buy their security from one vendor

-have best-in-breed, simplify integration!

-M&A driver

-small PACs vendors – need pipeline, large tech vendors need access to new tech

Source: Forrester, June 2013, survey of 2000 US and European Security Professionals



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## PACs Innovation - Challenges

Challenges	
<b>Complex, high-tech solutions</b>	-Repeat entrepreneurs, stay in the industry -Not young Harvard MBA grads
<b>HUGE array of products and sub categories</b>	-YOY RSA conf. increase at RSA conference -340 vendors in data security category alone! -Vendors + customers : differentiation?
<b>About risk reduction, not ROI</b>	-Buy now so in case bad happens later – difficult! -More advanced security tech ->> linear benefit? -Combine PACs benefits with other ROI benefits?



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## PACs Innovation - Challenges

Challenges	
<b>Process, not product</b>	-Consultancy and partnerships vital for sustained advantage
<b>Environment + Access</b>	-Access to hardest problems (Military? Large orgs?) Testbeds?
<b>Moving from prototype to deployment</b>	-End user adoption difficult – trust issues, usability issues, performance, save time etc)



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# Cyber Security “Clusters”

Why a global cyber-security firm chose Cork over London for its European base

eSentire plans to hire 100 staff for its new Irish operation.

May 27th 2015, 3:30 PM 16,426 Views 16 Comments

Share 16 Tweet 63 Email 29

Updated 15:30

**CANADIAN CYBER-SECURITY FIRM** eSentire knocked back the opportunity to expand its London base in favour of setting up a new European headquarters in Cork.

“We evaluated several different locations when we were making our decisions,” company vice-president Eric Ritter told *TheJournal.ie*.

“What Cork and Ireland offered – most specifically Cork – was access to some tremendous talent.”

The fast-growing company, which in October took in CAD\$14 million (€10.3 million at today’s rates) in investment, has tripled in size over the past three years and already had two offices in Canada, as well as operations in New York and London.



Image: Shutterstock/Benett Daoust



Visit our website or call The Hague Security Delta for more information.  
www.thehaguesecuritydelta.com  
+31(0)70 204 5180

## Malvern Cyber Security

Malvern Cyber Security Cluster



We are a group of more than 80 small cyber security companies, centred around Malvern in Worcestershire. We represent a range of providers to give our cyber security businesses, improve the cyber security of local enterprises, and also raise awareness of cyber security amongst young people.

If it is to join this cluster and we hope as you are actively working in the cyber security or information assurance markets, we would be very pleased to welcome you to this group.

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# Additional help?

eMarketing Workshop | Thursday 18th June 2015 - Limerick

eMarketing Workshop  
Digital Strategies for International Markets

### About the workshop

The Enterprise Ireland [Internet Marketing Unit](#) is hosting an eMarketing event for [ISIA](#). This event *Digital Strategies for International Markets* will focus on how companies can use the Internet to:

- market their products and services more successfully in international markets;
- learn about the strategies and processes needed to identify, reach and retain new customers on the Web.

The event is specifically targeted at those who work in international marketing and sales, or those responsible for their company’s online marketing strategy. Leading experts in their fields will cover topics such as:

- Developing an Online Marketing Strategy;
- Responsive Design & Mobile Marketing;
- Localisations & User Experience for International Markets;
- Search Engine Optimisation;
- Branding & Getting the Web Site Content Right.

### Date & Venue

- Thursday 18th June, 2015 - 9am to 1.30pm
- Radisson Hotel, Ennis Road, Limerick

**ISI** infosecurity ireland

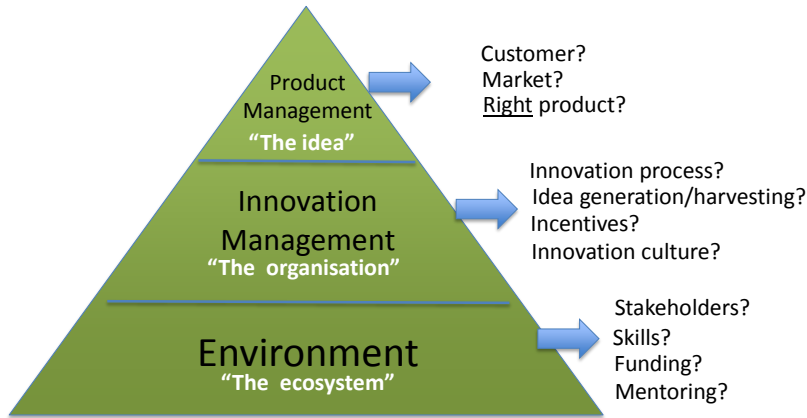
About us Our Expertise Members




## Our Expertise



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# PACs Innovation – Formula?







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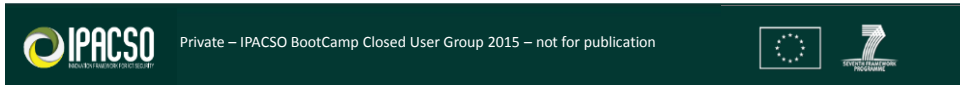
## Helicopter Overview



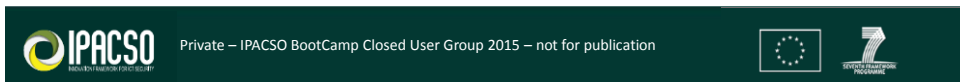

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<p><b>Ideation</b></p> <ul style="list-style-type: none"> <li>• Market Scanning Techniques</li> <li>• Problem Definition</li> <li>• Idea Generation and Capture</li> <li>• Idea Assessment</li> </ul>	<p>PESTEL, 9 Forces, McKinsey 7 S Framework, SERVO Analysis, Forecasting and Roadmapping, Problem mapping, Ideation Methods, 1H5W, Delphi, SCAMPER, 6 Thinking Hats etc...</p>
<p><b>Conceptualisation</b></p> <ul style="list-style-type: none"> <li>• Concept Development</li> <li>• Problem-Fit Assessment</li> <li>• Feasibility Assessment</li> </ul>	<p>Prototyping, Blueprinting, Business Model, Business Road Test, Business Case Procedure etc...</p>
<p><b>Portfolio Management</b> Resourcing, evaluating, selecting, prioritising, accelerating, killing, de-prioritising innovation concepts (projects)</p>	<p>Financial Methods, Business Strategy Methods, Bubble diagrams, Scoring Models</p>



## Concept Development Exercise: Exploring the Business Model



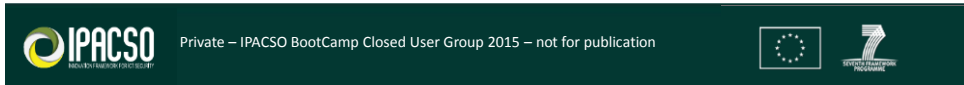
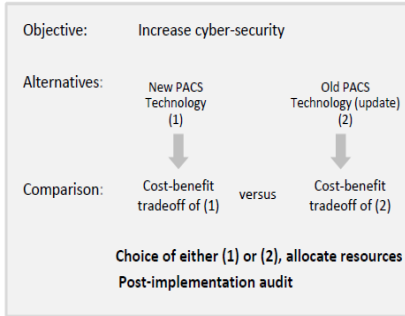


# The (Cyber) Security Business Model

## Cost – Benefit Tradeoff

Costs	Benefits
Purchase costs/in-house R&D	Potential decrease in security incidents & cybercrime losses
Administrative costs	Potential increase in trust of customers
Opportunity costs	Potential reduction in costs of liability
	Potential increase in reputation & firm's value
	Protection from unfair competition (industrial espionage)
	Potential reduction in switching of customers to competitors
	Increase in compliance (if a security duty of care is mandatory)

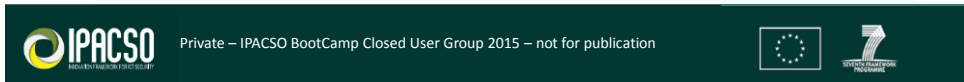
## Business Case for Cyber Security



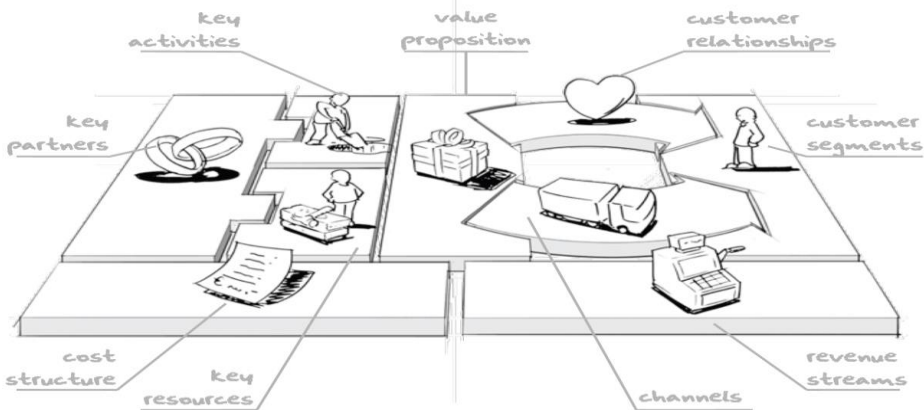
# The (Cyber) Security Business Model

Instrument impacting on Incentives of Market Participants




Character of instrument	Instruments
<b>Mandatory</b>	Adjustment of liability of firms for duty of care / diligence
	Data breach notifications
	Install and clarify property rights to personal data
<b>Mandatory or voluntary</b>	Trust marks and technical security seals
	Information sharing of incidence information
	Promotion of cyber insurance
	Care and diligence standards
<b>Voluntary</b>	Privacy by design and security by design
	Increased tax credit for cybersecurity investments
	Accelerated cost recovery reductions on cybersecurity investments
	Funding of research projects at firms
<b>Other measures</b>	Establish personal data as economic valuable
	Increase consumer education with regard to data protection/privacy, increase awareness of risks
	Create risk awareness among firms



# Exercise: Business Model Generation

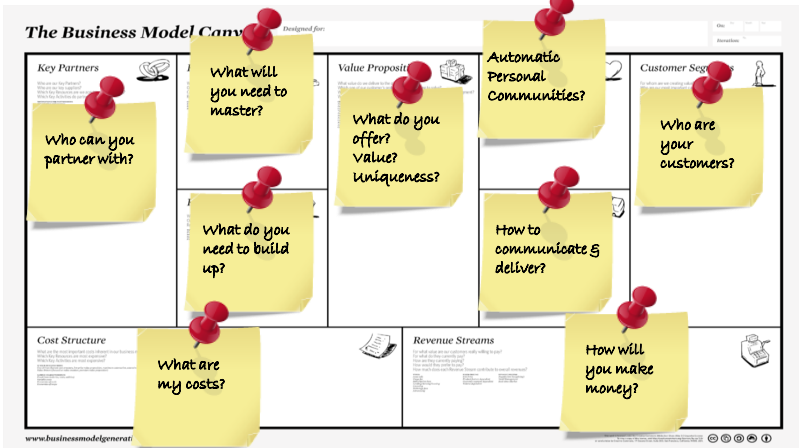





images by JAM

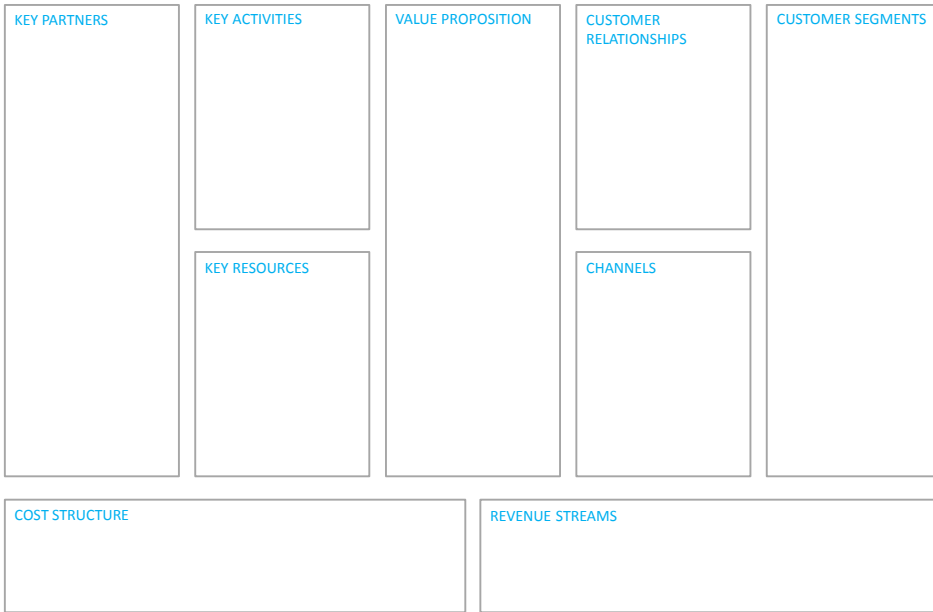

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## Tool: Business Model Canvas



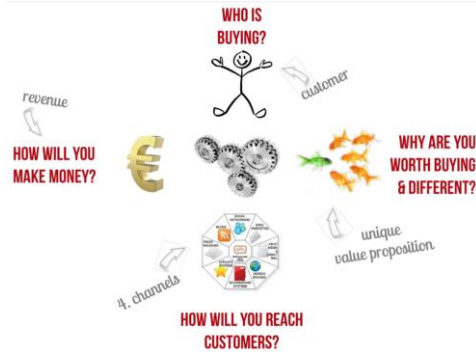
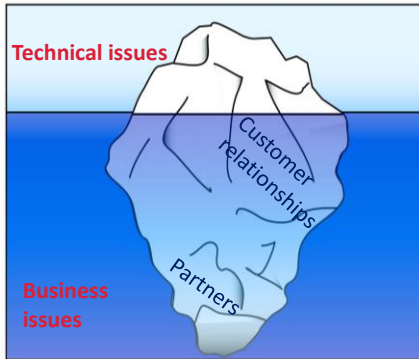

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<ul style="list-style-type: none"> <li>• Project Planning</li> </ul>	Project planning and management techniques, Prince2, PMBOK, Innovation Management and Measurement techniques ...
<ul style="list-style-type: none"> <li>• Product Elaboration</li> </ul>	Development Methodologies - Waterfall, SCRUM, Agile and Product-Service Systems, Lean...
<ul style="list-style-type: none"> <li>• Product Exploitation</li> </ul>	Supply chain stages/activities , Production, Distribution, Marketing, Sales, After-sales, Product lifecycle management...

# IPACSO Bootcamp

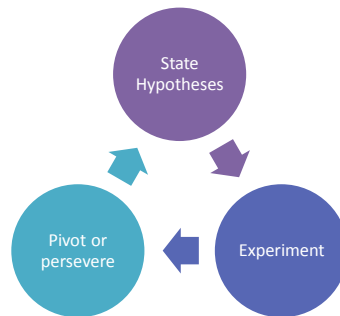
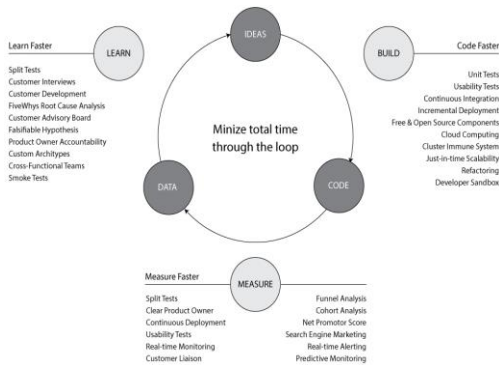
## Startup is more than product alone







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# IPACSO Bootcamp

## Lean Startup Development Methodology (Reis)





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## IPACSO Bootcamp




State Hypotheses





Problem-Solution Fit

# Problem-solution fit

<p><b>Problem</b></p> <p><i>top 3 customer problems?</i></p> <ul style="list-style-type: none"> <li>- Pain level: must have vs nice to have</li> <li>- Awareness: active vs. latent</li> <li>- Alternatives : how do they deal with these problems today?</li> </ul>	<p><b>Problem</b></p> <p><i>top 3 customer problems?</i></p> <ul style="list-style-type: none"> <li>- Segment? Early adopter?</li> <li>- Roles: user, economic buyer, influencer, saboteur?</li> <li>- How do they search for products?</li> </ul>
<p><b>Solution</b></p> <p><i>top 3 product features?</i></p> <ul style="list-style-type: none"> <li>▪ Do they solve the top 3 problems?</li> <li>▪ Barriers to adoption (e.g. fit/integration with existing workflow)?</li> <li>▪ Is my price accepted?</li> </ul>	



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## IPACSO Bootcamp



Experiment



Engage with (Potential) Customers

# Talk to your customer

A 1<sup>st</sup> **problem** is...  
Does this resonate with you? How do you deal with it today?  
Is it a must-have?...



Would you **pay** €xx a month to use a tool like this?

This is how our **solution** looks today (screen per problem).  
Which of the screens resonated the most? Which could you live without?  
Are there any additional features you think are missing?



Use Mocks



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## Build MVP's

### Minimal Viable Product

- Build a prototype
- Can range from a pen and paper prototype, blueprints etc. to a demonstrable working prototype.
- Measure the response through qualitative or quantitative research methods such as observations, user-experiments.



## What is a pivot?

- Change of an aspect of a business model
  - *Successful startups change direction quickly*
  - Based on learning
- Grounded in the vision
  - *They keep one foot in the past and place one foot in a new possible future*

**Customer problem pivot:** same product, same segment, different problem

Starbucks : started selling coffee beans & espresso makers

**Technology pivot:** repurpose the technology to solve a more pressing or marketable problem

**Product feature pivot:** remove features for focus, or to add features for a more holistic solution  
pay close attention to what real customers are doing

**Revenue model pivot**

e.g. from a premium customized, to a low price commoditized solution  
e.g. from a one-time sale to monthly subscription or license fees  
e.g. razor versus blade strategy

**Sales channel pivot:** use lessons learned from customers to switch from direct sales

E.g. distribution channel, ecommerce, white-labeling ...

**Product versus services pivot:** if products are too different or too complex to be sold effectively to the customer with the problem bundle support services with the product, education offerings...

**Major competitor pivot:** react when a major new player or competitor jumps into your space





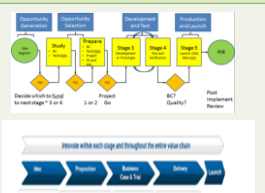

# IPACSO Bootcamp

## Evolution of Innovation Modelling

Model	Generation	Characteristic
Technology push	First	Simple linear sequential process, emphasis on R&D and science. The initial impetus is the progress in technological ability.
Market pull	Second	Simple linear sequential process, emphasis on marketing, the market is the source of new ideas for R&D
Coupling	Third	Recognizing interaction between different elements and feedback loops between them, emphasis on integrating R&D and marketing
Interactive	Fourth	Combination of push and pull models, integration within firm, emphasis on external linkages
Network	Fifth	Emphasis on knowledge accumulation and external linkages, systems integration and extensive networking.
Open	Sixth	Internal and external ideas as well as internal and external paths to market can be combined to advance the development of new technologies

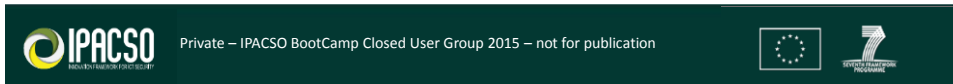
# IPACSO Bootcamp

## Snapshot: Approaches to Innovation

<h3>Open Innovation</h3> 	<h3>Cross-Functional Teams</h3> 	<h3>Funding /Exploitation Routes</h3> <p><b>Funding</b></p> <ul style="list-style-type: none"> <li>• EU: FP7/H2020</li> <li>• National programmes</li> <li>• University collaborations</li> <li>• Commercial/contract research</li> </ul> <p><b>Process:</b></p> <ul style="list-style-type: none"> <li>• End to end phases (idea -&gt; launch)</li> <li>• Cross-functional</li> <li>• Stage gate</li> <li>• Open Innovation</li> </ul> <p><b>Exploitation:</b></p> <ul style="list-style-type: none"> <li>• Technology transfer</li> <li>• Supply chain</li> <li>• Licensing</li> <li>• Incubations</li> <li>• Spin out</li> </ul>
<h3>Stages/ Phases</h3> 	<h3>Levels of Innovation</h3> 	



<ul style="list-style-type: none"> <li>Selecting the Right People – developing innovation teams</li> </ul>	Team roles in the innovation value chain
<ul style="list-style-type: none"> <li>Human Resource Management</li> <li>Managing, motivating and rewarding innovators</li> </ul>	Organisational level actions, Innovation stage actions
<ul style="list-style-type: none"> <li>Key Stakeholders/ Individuals</li> </ul>	PACS clusters, Policy Framework, Standards and Legislation Actors and Initiatives
<ul style="list-style-type: none"> <li>Relevant PACS related organisations</li> </ul>	Listings of cyber security associations in Europe



### IPACSO Innovation Awards

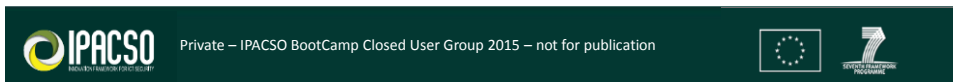
- 2<sup>nd</sup> European Privacy & Cyber Security Innovation Awards
- Registration process open: [www.ipacso.eu/](http://www.ipacso.eu/)
- Award ceremony will be taking place October 22<sup>nd</sup> at Living Tomorrow, Brussels, Belgium
- 7 categories:



- Innovative Cyber Security Product
- Innovative Cyber Security Service
- Innovative Cyber Security or Privacy Research
- Innovative Cyber Security Company
- Innovative Privacy Company
- ICT Security Innovation
- Privacy or Cyber Security Innovator

### IPACSO Innovation Bootcamps

- Interactive workshops for Cyber Security and Privacy Innovators/researchers intended to:
  - field test Framework components under development
  - guide innovators with practical advice, market support and information
  - support the development of their business case
  - motivate going to market
  - networking amongst peers (sharing ideas and experiences)
- Bootcamp schedule: [www.ipacso.eu/](http://www.ipacso.eu/)



## Other ad-hoc recommendations

- Register as an evaluator with EU Commission for competitive funding
- Register your company with the Commission
- Join some of the linkedin groups or innovation cluster



Digital Enlightenment Forum 2015



## Next steps

- Feedback – short questionnaire
- Follow-up workshop /online meet-up



Digital Enlightenment Forum 2015

