

# Software (SW) Industry Challenges

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PERSPECTIVES FROM DEVELOPING COUNTRIES

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# Software, *DNA (enabling ) the Digital Economy...*

- The **DNA** of the digital economy
- Transversal **enabler**
- **Strategic** piece
- **Critical** technology
- **Conditional** (potential limitation)
- **Transformational** tool
- **High complexity** component
- Very **fast evolution**
- Source of **Innovation**
- Art **or** Science?... Art **&** Science?
- Highly depending on **human talent**
- Highly depending on **global knowledge**
- Highly depending on **global networking**
- Requires a **complex digital ecosystem**



**TecApro**<sup>®</sup>  
Tecnología Apropriada

*the (pioneer) SME  
that started it all...*

- A **success case** of a professor and its top students (UCR-1986)
- 1<sup>st</sup> **export-driven / IP SW** Co in CAC
- **Pioneer** SW exporter in CAC
- 1<sup>st</sup> **technology-based** SW Co in CAC
- Directly providing SW & related services to **over 20,000+ SMEs in 24 countries** (as of 2012)
- Directly providing SW components & related services to **12+ leading global technological companies** (and indirectly its customers)
- Strong focused on **innovation** and **quality** (first IT company in CAC **ISO certified** since 2003)
- Deeply into **new business models** and **diversification** strategies
- Several **awards** locally and internationally

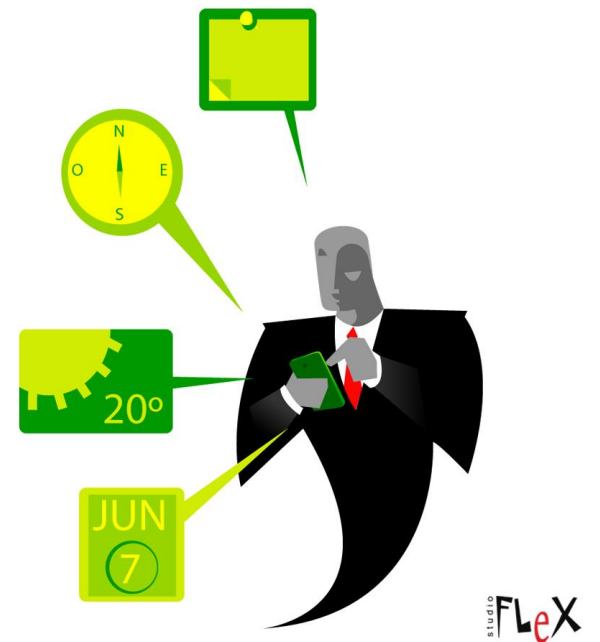
# TecApro® *the (pioneer) SME that started it all...*



- TecApro-**SACET®** | **PBX & IP-PBX software/services specialist** (165+ PBX Vendors / 1000+ PBX & IP-PBX models)
- TecApro-**BOS®** | Business Operating System specialist (**integrated suite** of ERP, CRM, SCM, BI solution for SMEs)
- TecApro-**EVICERTIA®** | Certified **digital evidence** services experts
- TecApro **INDROMICS®** | **1<sup>st</sup> Bioinformatics company in CAC** (alliances with Illumina and BGI-China)
- TecApro **IMAPP®** | **Digital inspection** of civil and public constructions (in alliance with APPLUS)
- TecApro **INFONET®** | **Networked IT services and security** specialist (in alliances with British Telecom, Cisco, EMC, Fortinet, Tigo/Millicom, Telefonica, ICE, Cable & Wireless)

# TecApro® *the (pioneer) SME that started it all...*

- SW developer, **customer, IP and high value added centric**
- Success **transitioned into SaaS / Cloud / Apps new** technologies
- Success **transitioned into subscription based new** business models
- **Recurrent incomes are 118%+** of operational costs (up to 2012)
- High emphasis on attracting/retaining talent (<3% annual turnover)
- Blending several **high productivity SW development tool**
- **15%+ revenues to R&D& Innovation**



# Costa Rica, a (sustainable) digital ecosystem living lab...

- Pioneer **SW development companies triggered CR's high tech vision** (1986)
- Strong **investments in human and social development** (i.e. education, health, infrastructure - **after abolishing army in 1948-**) had created the foundations
- Government fostered the vision and placed key public policies to boost digital opportunities:
  - computing as a regular subject in public systems from primary school and up -since 1987-;
  - Creation of the Ministry of Science, Technology and Telecommunications -1987-;
  - English as a second language program on public system from pre-school -1994-;
  - no taxes to microcomputers and related - since 1986-;
  - ICT national strategy & multi-stakeholders structure since 2003 – **Costa Rica Green & Smart 2.0**
  - FDI's national strategy (high tech focused) matching to boost the national assets and capabilities
  - Strong liberalization of foreign commerce (multilateral (WTO) and multiple free trade agreements (US, Canada, Mexico, China, Chile, Colombia, Peru, Central America, The Caribbean, Singapore, European Union (\*), others
  - By Constitution, 8% of GDP allocated to education and 1% additional to develop public universities infrastructure

# Costa Rica, a (sustainable) digital ecosystem living lab...

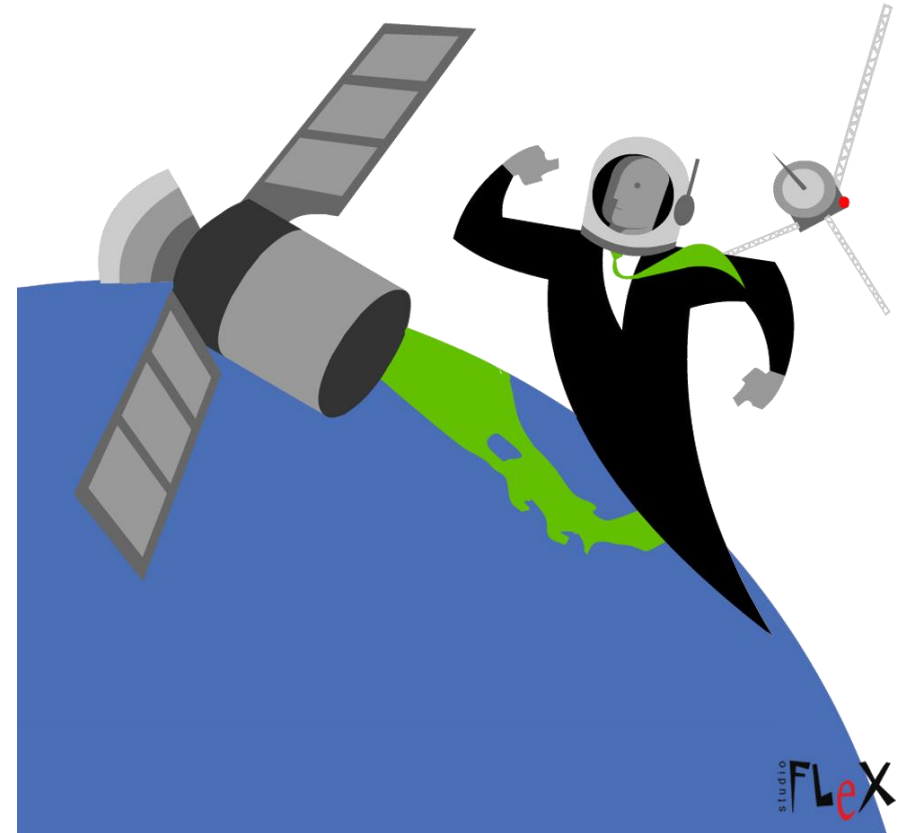
- **Ranked 4<sup>th</sup>: high tech exporter** of industrial products (WB 2012)
- **Growing links and partnerships** between local SW industry and FDI high tech multinational firms
- **Ranked 10<sup>th</sup>: population skills and preparation to take advantage of digital economy's** opportunities (WEF, 2011)
- **Ranked 23<sup>rd</sup>: top public educational system** (WEF, 2012)
- High tech services exports **increase annually by 21.8% average** since 2000
- In 2012, high tech services related exports were **higher than all combined agro & natural resources exports**
- SW industry **is a key player at the national digital ecosystem**, fueling several other high tech industries and sectors
- Public policy **focuses in building a healthy digital ecosystem**





# Challenges, *(surviving) the globalization...*

- SW industry as a **key players for sustainable** knowledge society
- Entering into **new technologies and business models**
- SW: **from IP licensing to a service subscription** (SaaS/Cloud/Apps/Mobile)
- New business models and innovation pressures **demand high financial capital**
- SW industry **moving from talent based to capital based** industry
- **IP**: still not a banking asset
- Fast and high SW development and **high productivity tools**
- Shift **from traditional to non-conventional** programming tools and methodologies
- Getting and retaining the right **number and quality of talent**
- Is SW becoming **a commodity**?



# Opportunities,

(driving)

the globalization...



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- **Over 98% of SW companies are SMEs** and they are accounted for a similar participation in employment
- They are also accounted for significant proportion of innovation in digital technologies
- SW SMEs as '**economic cells**' to boost digital economy
- SW SMEs are key agents in **disseminating and transferring digital technology** in developing economies
- Economies of scale based global business models can (MUST) **be conciliated** with SW SMEs: i.e. TecApro
- **Partnership** between SW industry, FDI firms, Governments, Academia and NGOs is a must to boost opportunities and address the challenges
- **Human talent** is critical for SW SMEs and SW sector
- **Business models and technology are equally** important to SW SMEs strategy
- Financial capital, IP and innovation are key to boost SW SMEs through globalization challenge
- SW sector must be incorporated in **public policy** approaches, as part of the digital ecosystem