CODESPRING

OUR CODE YOUR SUCCESS

Edition No.2

COMPANY
PAPERS

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Striving for Excellence

After a hectic couple of years, we have found a little moment to reflect upon what will 2011 stand for: What would be the drive for our business behaviour? What will be the challenge this year? What does Codespring team need to achieve? Where will our clients and partners seek for added value? ... a few questions that requested simple, straightforward answers.

Eventually, we have pinned-up a single word: „EXCELLENCE".

Obviously, achieving excellence is a daresome action. Often it is difficult to define it, and more oftenly, excellence criteria will be mitigated. However, trying to overcome standards and to mark new performances motivates us. Therefore, we will continue to submitt the Software Development process to tougher evaluation, so that we deliver better and better work and products.

Achieving **business excellence** will engage all our resources and stakeholders. Hopefully, this process will help us be in the forefront of the domestic software development and outsourcing providers. Our Codespring Excellence Plan will have extended it's impact areas on the overall business attitude.

Finally, we use this 2nd edition of the „Codespring Company Papers" to extensively convey the message that Cluj-Napoca, Romania is an active promoter of the idea of „excellence" in the IT&C industry, as further data will reveal it.

Embrace the leading thought for 2011: **striving for excellence!**

Codespring Team.

CEE IT&C Industry Winning Models

2010 proved to be a year of major changes in the IT&C industry at global level. In order to restore growth rates, companies did focus on improving processes and reducing costs at all levels. However, reassessing customer needs was a priority. In the game, Central and Eastern European IT&C companies won important accounts by delivering outsourcing services and exporting software development.

Major Trends

Taking a snapshot of the CEE region data, some particular phenomena can be noticed: a) Migration of the Western European and US development centers to Central and Eastern Europe; b) Rising of new IT&C contenders on the CEE market; c) Increase of Total IT Services exports; d) Growth of domestic IT outsourcing consumption markets.
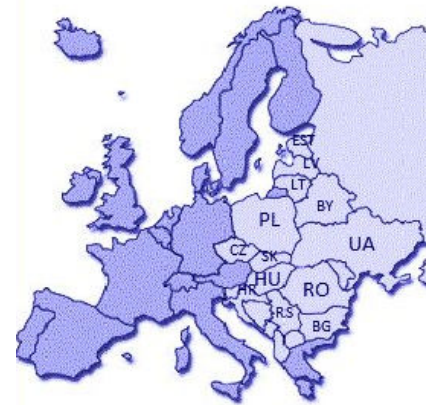
Figure1: CEE region

The countries who seize most of the contracts are: Romania (589 $ mln/2009), Poland (451 $ mln/2009), Czech Republic (371 $ mln/2009), Hungary (475 $ mln/2009) and Ukraine(697 $ mln/2009). They have slightly doubled their IT services exports in 2010 and also increased their quality management systems. This group leads in absolute numbers of certified human resource. Romania distinguishes itself from the group as a cultural mix between latin, germanic, hungarian and slavic cultures.

Middle sized markets are rapidly growing in Bulgaria, Serbia, Estonia, Slovakia and Lithuania – benefiting from direct foreign investment or co-investments. The freshest group of contenders is formed by smaller countries in the CEE: Croatia, Moldova, Latvia, Slovenia and Albania.
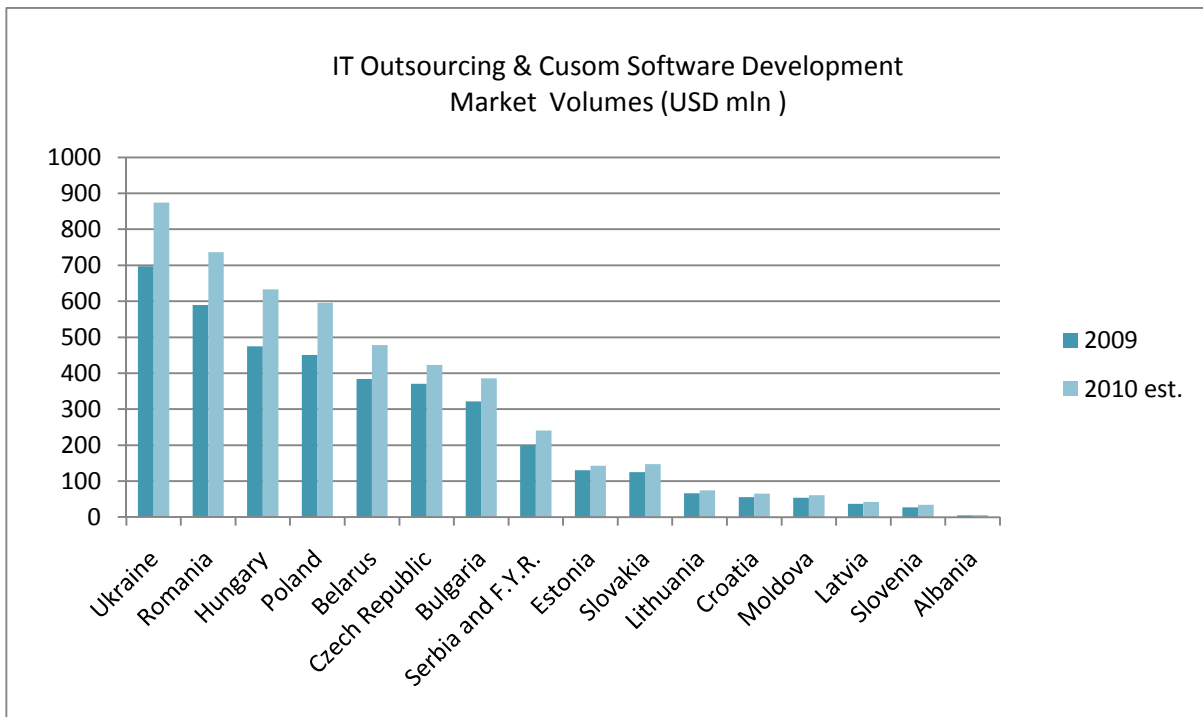
Figure 2:Market Volumes 2009 and 2010 estimates / source: CEE IT Outsourcing Review 2010

Romania and Ukraine constantly lead the growth rates of the region, estimates for 2010 being of 874 USD mln for Ukraine and 736 USD mln for Romania, calculated for IT Outsourcing and custom software development services.

Romania / The IT Outsourcing and Custom Software Development Model

IT services exports growth rate (2010)[1]	25,44 %
Employees involved in IT outsourcing industry[2]	14.200,00
Country ranking in Deloitte's CEE technology top 50	4th place
IT&C contribution to national GDP[3]	3.2 %
IT&C contribution to total exports[4]	9%
IT outsourcing market value ($ Mln)[5]	589

Figure3: IT Outsourcing Market at a Glance

As for other countries in the Central-Eastern Europe, Romania found a winning strategy in developing its IT outsourcing capacities. Along with custom software development services, these businesses have registered constant growth even during the recent global recession. Studies reveal that Romanian software engineers are valued for their technical preparation and their wide knowledge of various foreign languages: English, German, and French.

Modern trends in the sector reveal mainly the qualitative aspects of the outsourcing process. Romania is a market heading to maturity, the 2009 and 2010 landscape providing a dynamic merger and acquisitions record. The total number of companies benefiting of foreign capital increased by average 40% - according to recent market researches.

A geographical outlook of the Romanian IT Outsourcing and custom software development, as presented in the map on the right, reveal 3 main centers – Bucharest (the capital), Timisoara and Cluj-Napoca – and two developing centers: Iasi and Brasov. Common features of all these locations are: elite education systems, cultural variety, highly developed service industry, quite fair infrustructure and international access.

Figure 4: Major IT Outsourcing and Custom Software Development Centers in Romania

Cluj-Napoca has been identified as a rapidly emerging leading IT&C center. It has continuously provided valuable human capital, and attracted new investments in 2010. Currently, Cluj-Napoca holds the pole position for hardware production in Romania and is ranked 3rd i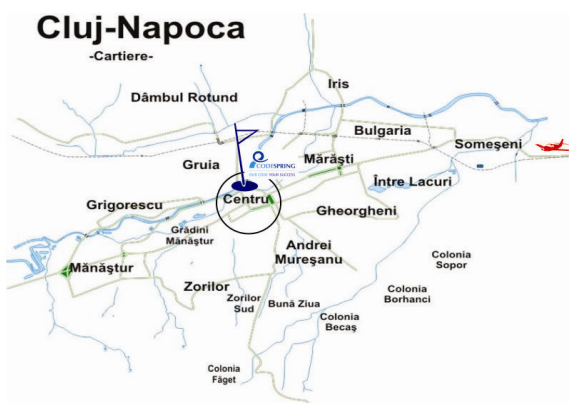n the software development and IT services sector. Cluj-Napoca is providing cca. 7% of the total annual domestic Software Development & Services resulting turnovers. The local market is following a consolidation trend manifested through two major options: a) merger of small and medium local providers or b) acquisitions by foreign companies willing to set development centers in the city. Local rates are similar to those at national level varying according to the desired technical skills, experience and soft skills.

For 2011 forecasts are mainly positive, adding new value to the outsourcing processes by allowing more frequently Project Managers to undertake full responsability for their teams & projects. (D.C)

Figure 5: Cluj-Napoca District Map / source: Wikipedia.org

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[1,2,5] – CEE IT Outsourcing Review 2010 / CEEOA

[3,4,] – Institute for Computers, Romania

Media & Entertainment:
The Technology Lever

Contemporary media and entertainment CEOs do not question anymore the capacity of the technology to reshape their businesses. Well chosen and executed IT strategies can facilitate success as the shift to digital continues. However, capturing business value remains a challenge for the most tech-savy practitioners. The explosion of the online world, coupled with the recent financial crunch has direct influence upon each technology related decision. The undeniable truth is that technology may leverage a business financial performance, and most obviously in the media and entertainment sector.

Codespring Expertise

Digital technologies and the major shift of media systems from the „mass-target" to the „individual-target" radically forced software developers to adapt and re-adapt technologies used. Codespring enrolled in the software developments for the media & entertainment sector by implementing solutions for professional products and systems for digital broadcasts and IPTV, (encoding, live streaming, on-demand streaming). The New Media has its own characteristics. Codespring engineers, web developers and programmers have solid experience in building different applications from scratch.

Codespring work:

The **iCue™ Streaming System** is a full fladged streaming platform with a wide range of applications in video surveillance, digital business TV, telemedicine, etc. Being a digital video server (near-real time system), we are continuously fighting with hardware performance, processor usage, network bandwidth and hard disk throughput. In order to achieve the best performance, Codespring used C++ and the windows API for low level network IO, disk operations and video content indexing and DCOM for interprocess communication. To speed up development time, higher level modules have been developed in C#.

Client: **InPhase, Germany**

Testimonial:

"Over our 10 years of collaboration for developing professional video applications, mutual trust and respect were the fundaments of our partnership. Technically skilled, receptive and prompt, they continuously uplift their knowledge and expertise."

Lorenz Zoltán, Product Manager

The Digital Production

Disruptive business models, operated via technologies like P2P (peer-to-peer), file sharing and PVRs (personal video recorders), AR (augmented reality) systems, gained attention and importance. There is to note the lack of reporting on the behind-the-scenes revolution about how content is produced, shared and stored using digital technologies.

Hardwares evolution coupled with video tracking and capture systems have severly changed the costs and capabilities to record and transmit news and information from hazardous environments. Secondly, in the back-office, digital production technologies facilitate central publishing and casting systems. Thus, news development and content sharing is simplified; media companies achieve greater asset utilization and improoved coordination. Of course, there are some technology innovators and some who just follow the general trend. The main barrier between the two categories is the costs of the infrastructure needed to implement digital solutions.

The pace of digital technology immersing the media and entertaiment sector is so intimidating, that many decision makers are confused about what to bring in and how to approach the change.

The Digital Technology Trends In The Media & Entertainment Sector

2011 brings better news for digital technology supporters. Media and entertainment companies may win much more based on effective technolgy strategies. Nowadays creative functions in these industries embrace a comprehensive approach for technology. A few distinctive pehonomena have been observed:
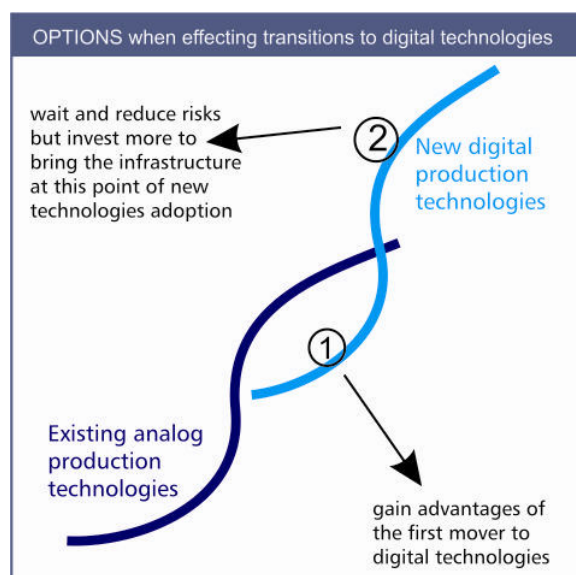

Figure 1. Transition to digital during the life cycle

- Media and entertainment production automation technologies become more accessible in price and maintenance; they are designed in a more user friendly manner; up to date workflow technologies simplify complex production processes;
- DAM (Digital Asset Management) vendors broadened their solutions making it easier to seize digital assets, to store and share increasing inventory of important content; everything in a shorter period of time, enabling instant and real time flow of information;
- Storage technology knew considerable quality optimization and became more reliable, less expensive, adequate to scalable corporate networks; along with enlarged bandwidth big media assets can now be transferred.

The big question for media and entertainment CEOs is when to invest in the acquirement of latest digital production technologies. As presented in the graphic above, there are mainly two strategic postures that a company may choose, depending on their general business strategy and financial resources. Being an „early bird", an innovator may help you catch most of the technlgy pioneers'advantage. Investing later in the transition to digital may allow you more comfortable business life but you may also loose the race against fast competition.

Offshoring and Outsourcing Information and Technology Activities

Before presenting the tremenduous potential that offshoring and outsourcing practices offer to media and entertainment sector, we draw the attention on the fact that business value derived from it may be achieved if implemented and managed properly. If selection process is correctly done and control keys are set in place, offshoring and outsourcing can be a gold medal tactic when integrated in the overall business strategy.

Fortunately a lot has been learned from finance companies and from large software development companies, who already have positive history with offshoring and outsourcing. And while economies and companies continue to globalize, this strategic idea suits well large media and entertainment companies.

Most of the total impact is to be sensed in total costs. The choice to offshore / outsource IT inrastructure, software and application development, new technology induction and related processes can cut costs by 20 % to 50%. Overmore, IT excutives may go for shorter and more aggressive time lines. Offshore and outsourcing partners have great expertise and familiarity with enterprise systems, therefore learning curves are shortened. Due to variable time-zones, a 24X7 production may be run and development can synchronize the work of all teams within less than a work-shift time. Greater talent pool and know-how is available for all the projects in place.

Best media and entertainment companies have the knowledge and scale to fullfill the offshoring and outsourcing promise. It takes a great deal to set the right mecanism, run with the proper skills and competencies these offshoring and outsourcing partnerships. On the long run, as our clients and many others declare it, this proves to be the ace in the sleeve when the media and entertainment company has to focus on operational efficiency and customer satisfaction. (D.C.)

Boost Productivity with:

Many Small and Medium Enterprises active in the manufacturing and small production related industries have implemented a production management software to maximize efficiency, boost productivity, ensure traceability and meet performance requirements of the European Union. In addition to this, by synchronizing real-time information across manufacturing methods, materials, manpower and machines, you can improve coordination of multiple production processes, regardless of location. The reason for this is that Time and not Money is your most valuable asset.

What is Productis?

Productis is production management software for dairy and meat manufacturing and processing units. The software developed by Codespring was designed especially for small and medium sized manufacturers and provides a full-featured production tracking and control system. Productis provides you every module needed to conveniently track and control the entire production process from quote to shipping. The application was launched on the Romanian market in 2008, is customizable to meet specific production process requirements and features real time entries: commercial orders are registered and transmitted via Smart Phones using GPRS/3G.

What features recommend Productis?

Covers the complete value chain of production. Productis handles purchase orders, packing, storage, inventory, deliveries and invoices. Thanks to its complete tracking system, the software ensures that you always have enough product available for production and delivery to customers while maintaining the lowest possible levels of inventory: it helps you to plan and integrate manufacturing, delivery schedules and purchasing activities.

Offers the management team full control of the production cycle of final goods and their market release. Using Productis you can gain better control over the types and quantities of materials purchased, allowing you to plan which products are to be produced and in what quantities, all at the lowest possible cost. What's more, the Codespring solution provides for more efficient production (longer runs, less product changeovers) and lower inventory levels.

Enhances the optimization of purchase management, delivery management and sales management. In order to insure the highest level of management reporting, software performance and ongoing client profitability, Codespring has applied advanced, industry specific, software concepts and technology innovations to everyday business issues for the express purpose of enhancing client performance and profitability.

Ensures traceability: Productis enables the user to verify the history, location or application of an item through documented record. **Enhances overall quality.** The application reduces human errors, assures automated processes, provides a clear and secure document and data management system, allowing work with remote teams.

Why choose Productis?

Using Productis will result in decreasing costs through better production scheduling, execution and management. In addition to this, the software will contribute to increasing revenues through improved customer service and product quality and enhance shareholder value. What's more, you don't need to buy the application as a product: Codespring implemented leading edge web-based SaaS (software as a service) technology designed to increase user adoption and speed of implementation and lower IT investments.

AR is here. Do We Have The Imagination?

In the last decade, we have been immersing into virtual worlds that continuously pushed the barriers towards real similarity. Today, artificial objects step in to our real world, in real time. This bleeding edge technology is known as **augmented reality**, abbreviated **AR.** It thins out the border line between what is real and what is computer-generated by enhancing our direct sensorial experience. The fast pace of personal devices developments introduce AR technology in our day to day life. We not only interact with information about surrounding reality, but are also able to digitally manipulate it (!). Besides current use, there is a question mark related to our capacity of imagining the *next step.*

The Augmented Reality Basics

Briefly, augmented reality may be referred as a way to merge in real time some 3D objects into live video sources. The first effective applications of this idea took shape in the early 50s and 60s. A logical conversion into a graphic representation was defined by Paul Milgram and Fumio Kishino in the early 90s as the Milgram's Reality-Virtuality Continuum (presented below). The continuum covers all states between a pure real environment to a pure virtual environment. The mixed reality includes the Augmented Reality (closer to reality) and the Augmented Virtuality (closer to

Figure 1: The Milgram's Reality-Virtuality Continuum / source: wikipedia.org

the virtual environment). In time the continuum was associated a second dimension, called Mediality. The mediated reality can be developed in two opposite directions via computer - generated sensory input: it can diminish or augment your perception of the real environment. On the graphic in the right, the SMV (Severely Mediated Virtuality) point stands for a pure virtual world, diagonally opposed to the IR point, the actual real world.
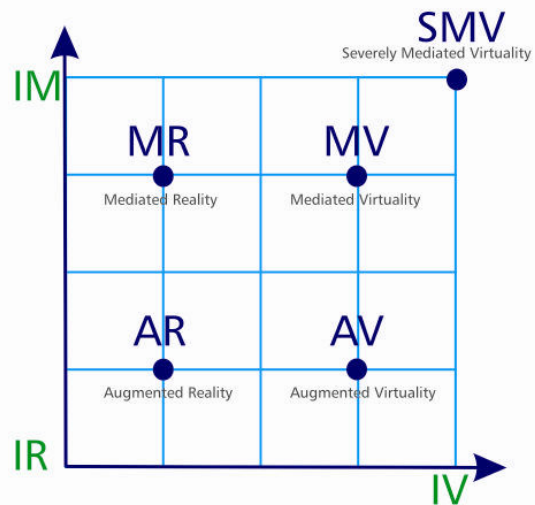
The AR Technology

The blend between ideational and real worlds requires adequate technologies. Both hardware and software evolution during the last three years opened the doorway of AR to the endusers.

Essential AR hardware include: display, tracking tools, input devices, various sensors and processors. Displays are currently the main point of contact between the user and the augmented reality. That's why research made a big tour to test three main

Figure 2: The Mediated Reality Continuum / source: wikipedia.org

categories of displays: HMD (head mounted displays) – optical see-through or video see-through in tight connection with the user, handheld displays – benefiting of the wide use of camera phones and spatial displays – separated from the user, comfortable and recommended for teamwork. While the handheld displays promise to be the first to build the market for AR, the SAR (Spatial Augmented Reality) systems support graphical visualisation and passive haptic sensation. As for tracking technologies, multiple tools enter the game: GPS (global positionning systems), digital cameras, solid compasses, accelerometeres, gyroscopes etc.

The software abilitating augmented reality must integrate augmentations in the real world, in real time. Two stages have to be completed: image registration and real world coordinates restoration. For more „realistic"results, a wide variety of computer vision and video tracking methods are being used. Identifying and selecting fiduciary markers may be combined with feature detection methods. Next, restoring reality from the obtained data and adding information to it will take use of projective geometry, rotation representation, bundle adjustment, filters and SLAM systems.

Augmented Reality Applications

The leaders in AR reasearch and application may not surprise you if we name the aerospace sector and the civil and military defense sector. An important step was to set up a system to help Boeing workers to assemble cables into aircraft. Next, the US Air Force Research Laboratory implemnted AR features in order to impove human performance.

Even stronger promoters of AR, media and entertainment industries deliberately pursuit wider AR applications, sensing it as the next stage of the digital age. One of the best known apps for iPhone, called Layar (available in the Netherlands) uses the camera and the GPS to gather and deliver information about the surrounding areas. Then, there is the award winning Wikitude, the browser finding information about the nearby sites on Wikipedia and gathering various information sources and the Wikitude Drive application the worlds first fully functional mobile AR navigation system with global coverage (for Android 2.1 and above). It is a light weight turn-by-turn navigation system that uses Augmented Reality.

> „*Augmented Reality* is identified as one of the top ten most disruptive new technologies for **2008-2012** by Gartner Research and is expected to be used by more than 30% of the mobile workforce by 2014“
>
> **Gartner 2009**

> „*We are witnessing the start of the age of augmented reality, electronically enhancing our view of the world. Ultimately we will see augmented reality as the platform that converges the real and virtual worlds and the consequences of that, once fully developed, will dwarf the impact of the World Wide Web.*“
>
> Source: The Telegraph

Games industry fell inlove with AR technologies! It offers an enhanced and controled experience of the game. There are already a variety of games available on the market, one of the pioneers in the field being the Total Immersion company. Some event try to take video games like „Pac-Man“ into the streets. The players are taking real action in the real physical world, wearing some goggles making them look like game characters.

Marketing and Advertising are embracing AR technologies in order to promote the target audiences' experience with the promoted products. Industrial use may diminish the number of real prototypes by working with digital mock-ups. Complex tasks in the industrial and medical sites can be run supported by AR technologies. And, as you may imagine there are a lot of other potential extensions of the augmented reality.

Do We Have The Imagination For The Future AR ?

At this point, there are still many limitations that augmented reality technologies have to overcome. We hereinafter refer both to hardware and software limitations. Global positioning systems offer limited accuracy. Simultaneous Localization And Maping systems need still to be improved. Displays need to be more comfortable and portable. Software need to fullfill newer and more complex tasks.

Additionally, we question our capacity – as users – to assimilate it correctly and maximize the benefits this technology brings along. Too much information may be harmful. There will again be a matter of source reliability, security, accuracy and availability. Changing our perception on reality, some may prefer the altered one instead of the original reality. That may occur in behavioural change and altered social interaction. Privacy will be another big issue, due to the overwhealming social networks where we naively upload all kind of personal information.

> „*Augmented Reality* is in a similar position to the earliest years of television, where shows were just radio with an image attached … By 2015 augmented reality glasses will be mass market, so you won't walk around holding your phone up to things. With one gesture, you could show that you like a pair of shoes you see someone wearing and could buy them online. And you could switch on the sun on a rainy day. It's totally immersive.“
>
> *Source:* Guardian Unlimited

Expanding our instant view on the world should consider a fair and simple criteria: utility. (D.C.)

Scientists and Business Executives Gather for Regional Cooperation

September 2010

Romanian-Hungarian cooperation initiatives within the business and academic work frame show promising results. The scientific conference held in Pécs, Hungary in 2010, pointed out the major contribution that business environment can bring for the academic one and vice-versa. Restrained to the IT&C industry, the conference aimed to assure a matchmaking session for local companies from Cluj, Romania and Pécs, Hungary.

SPOTTING TALENT / Autumn HR Campaign

September 2010

Codespring's "SPOTTING TALENT" autumn campaign started, in September 2010 in Cluj-Napoca.
Actively looking for new talent to join our team, Codespring participated at a series of local fairs and events, in order to communicate the current opportunities for fresh IT&C graduates and junior software engineers. Of great interest, our Career Plan was well accepted by the audience.
Our HR campaign will continue its "spring edition" in 2011.

IT&C Specialists Defy the Global Recession

October 2010

Our 1st Company Papers Edition, published in September 2010, was very well received by the Romanian Community living in the USA. **Ms. Simona Botezan**, a Romanian Journalist living in Washington D.C. granted us with an article based on the information about the local Cluj-Napoca Software Development Market, published on www.monodnews.com on the 1st of October 2010.

Codespring Seals Research Partnership with Babeş- Bolyai University

October 2010

Codespring encourages active learning through hands-on experience: the software development and outsourcing company has established a research partnership with the Babeş – Bolyai University from Cluj-Napoca to bring entrepreneurial expectations a step closer to academic preparation. Aiming to extend the company's service portfolio on the local market, Codespring decided to conduct a big-scale market analysis, involving graduate marketing students into the research project.

IT Companies from Sweden & Norway Meet Romanian IT Delegation

November 2010

The Norwegian and Swedish IT Representatives are ready to enhance technical exchange and cooperation with Romanian software service providers. ARIES – the Romanian Association for Software and Electronics Industry and the IT Associations from both countries work together to push forward the comprehensive and friendly cooperation between the interested parties. As a result, a Romanian delegation of software service providers has met their industry counterparts, in Oslo and Stockholm, between the 22nd and 26th of November, 2010.

On the Lookout for Talent at the Technical University from Cluj-Napoca

November 2010

On the 25th of November 2010, Codespring held a company presentation and workshop at the Technical University from Cluj-Napoca during the ELECTROTECH 2010 event, organized by OSUT (The Technical University Student Organization). In addition to the experts that have already been hired, Codespring is developing new talent pools within fresh graduates and other interested professional groups.

High –Power Business Networking at the SME Forum 2011in Luxembourg

February 2011

The b2fair matchmaking event of the ´SME Forum´ will take place in Luxembourg in the premises of Luxexpo on 10th & 11th February, 2011. As part of the professional trade fair ´CONTACT´, this matchmaking event offers the ideal meeting place to promote and to generate potential business contacts between companies at interregional and international scale. Coming from Rhineland-Palatinate, Saarland, Lorraine Wallonia and the Grand Duchy of Luxembourg, the participating companies are all willing to extend their business relationships to the neighbouring regions as well as to many other European countries. The participation of business delegations from Hungary, Italy, Poland, Bulgaria, Romania, Croatia, Serbia, and Turkey will enhance the international character of the event. Codespring will be represented and promoted at the event by CENTI – The Center for Technology Transfer from Cluj-Napoca.

Tapping Into New Markets: Codespring at CeBIT 2011

March 2011

CeBIT is granting a professional platform for key representatives of the ICT industry, telecommunications and the new media for doing business and sealing deals under the power of creativity and innovation. The leading business event for the digital world, CeBIT 2011 will take place between the 1st and 5th of March this year. The international fair from Hannover, Germany highlights innovative solutions in digital technologies. Codespring will participate at the event for the fifth year. Meet Codespring in **Hall 5, Booth 48.**

'Smartmobil' Conference and Exposition for Mobile market Shapers in Budapest, Hungary

April 2011

Get a glimpse into what the mobile market has yet to offer in terms of smartphones and tablet PCs at the 'Startmobil' conference held in Budapest, Hungary, on the 6th of April, 2011. Mobile application developers, service providers, device providers and telecom companies will be present to share their views about the future of the mobile world. Keynote subjects include iOS, Android, Symbian, Blackberry, Windows Phone, HTML 5. Have a new idea to perk up the mobile trends?

www.codespring.ro