

Status of the Digital Arabic Content Industry *in the Arab Region*



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STATUS OF THE DIGITAL ARABIC CONTENT INDUSTRY

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ملخص تنفيذي

يعتبر المحتوى الرقمي أحد أهم العوامل في إحداث نقلة نوعية في الهياكل التقليدية للصناعة المعرفية ونماذج الأعمال وطرق التعامل، ويمكن القول أن المحتوى الرقمي قد أصبح بجدارة نشاطاً هاماً قائماً بذاته. لذا قامت العديد من دول العالم بوضع استراتيجيات لتطويره بهدف تسريع عمليات إنتاج وتوزيع وتسويق المحتوى الرقمي وتطبيقاته على المستويين الوطني والدولي. ومن الواضح أن الاهتمام بالمحتوى الرقمي وتطبيقاته يتصاعد بسبب الأهمية الاقتصادية التي يتسم بها، وباعتباره وسيلة للتعبير عن الهويات الثقافية للشعوب.

بدأ اهتمام الإسكوا بموضوع المحتوى الرقمي منذ العام ٢٠٠٣، واعتبرته ركيزة أساسية لاقتصاد المعرفة وميداناً واسعاً لفرص استثمارية لدول المنطقة في تكنولوجيا المعلومات والاتصالات. وبرغم ما يبدو من تحديات تواجه صناعة المحتوى الرقمي العربي فإن فرص النجاح للمشاريع في هذه الصناعة تعد كبيرة بجميع المقاييس. ويعتبر المحتوى الرقمي، بأشكاله المختلفة، العمود الفقري لاقتصاد المعرفة مغطياً بذلك قطاعين أساسيين هما: قطاع الإعلام والمحتوى، والقطاع الإبداعي، بحيث يشكل هذان القطاعان مساحة واسعة لتطوير المحتوى الرقمي.

وقد عرّفت قمة توصيل العالم العربي ٢٠١٢ المحتوى العربي بأنه يتخذ عدة أشكال منها النصوص والصور والسمعيات والمرئيات والخرائط والتطبيقات الإلكترونية، كما يُستخدم لعدة وظائف منها التواصل والأخبار والتشبيك والتوظيف والترفيه والتجارة الإلكترونية والبحث وخدمات المواقع والتعليم والتدريب وغيرها. كما تتوفر أدوات وتكنولوجيات متعددة لإنتاج وتوزيع المحتوى. ويعتبر المحتوى الرقمي المتوفر على الإنترنت من أبرز محركات تنمية منظومة الإنترنت. ومع التوجه العالمي نحو الرقمنة، يخترق المحتوى الرقمي أيضاً مجالات البث الإذاعي أي التلفزيون والراديو والكتب والموسيقى والسينما. وينبغي أن يُنظر إلى المحتوى الرقمي ضمن سياق البيئة والأليات الهادفة إلى استحداثه وتخزينه وإصاله وتقديمه. ولا يقتصر ذلك على البعد التكنولوجي فحسب وإنما يتعداه ليشمل أيضاً البعد القانوني والبعد الثقافي. وهذه النظرة الشمولية عنصر أساسي للتعامل مع المسائل ذات الصلة بتطوره^١.

ويأخذ المحتوى الرقمي أشكالاً مختلفة من نصوص وصور وفيديو وسمعيات ورسوم متحركة وخرائط وتطبيقات إلكترونية، ويستخدم في وظائف متنوعة في الاتصال وتناقل الأخبار والتواصل الاجتماعي والتوظيف والترفيه والتجارة والبحث وتحديد المواقع والتعليم والتدريب وغيرها. كما توجد وسائل وتكنولوجيات متعددة لإنتاج ونشر المحتوى الرقمي الذي بات يعتبر المحرك الأساس لشبكة الإنترنت.

وقد حقق اعتماد المحتوى الرقمي في قطاع الإذاعة والتلفزيون والكتب والموسيقى والسينما نجاحات متزايدة في السنوات الأخيرة، وهو بمثابة الوسيلة المواتية للمحافظة على البيئة، ليس من الناحية التكنولوجية فحسب، بل من

^١<http://www.itu.int/ITU-D/connect/arabstates/WG3.asp>

النواحي القانونية والثقافية. وتعتبر النظرة الشمولية للمحتوى الرقمي ضرورية لمعالجة القضايا ذات العلاقة بتطوير هذه الصناعة.

لقد شهدت صناعة المحتوى الرقمي والخدمات المصاحبة نمواً واضحاً خلال السنوات الأخيرة مقارنة بقطاعات صناعية أخرى، وظهرت نماذج أعمال مختلفة منها ما اعتمد أسلوب الاشتراكات، أي مقابل ثمن، أو اعتمد الإعلانات كوسيلة لتحقيق العوائد المالية، وأساليب أخرى كالتعاقد مع شركات الأعمال والمستهلكين. وفي جميع هذه النماذج فإن توفر الحزمة العريضة للاتصال بكلفة معقولة، بالإضافة إلى المحتوى المناسب هي عناصر أساسية لتطوير ودعم سوق المحتوى الرقمي ونشره على المستويات كافة.

أما على المستوى الدولي، فتتسم صناعة المحتوى الرقمي بتركزها في عدد محدود من الشركات المتمتعة بخصوصيات اقتصادية، كالوصول السهل إلى رأس المال المغامر، وسوق الأسهم، أو توفر الأسواق الواسعة الطلب. وتستطيع هذه الشركات فرض قواعد العمل في الأسواق ونماذج الأعمال التي تناسبها. وتحاول الشركات الصغيرة الناشئة، بالمقابل، التكيف مع هذه الظروف وبالتالي المنافسة. وقد تحقق الشركة الناشئة فرصتها في النجاح، في أحسن الحالات، من خلال استحواذ إحدى الشركات الكبرى عليها لقاء ثمن مغر لا تستطيع شركة حديثة التأسيس رفضه.

لقد حققت التحولات الاجتماعية والسياسية التي تمر بها المنطقة قفزة نوعية في إثراء المحتوى الرقمي العربي والوصول إليه عبر الإنترنت من خلال الشبكات الاجتماعية والتطبيقات الإعلامية الأخرى، ومن خلال المساهمات الفردية وتحميل النصوص والفيديو. لذا فليس من الغريب أن نرى أن اللغة العربية قد قفزت عام ٢٠١١ من مواقعها المتواضعة في السنوات الماضية إلى المرتبة السابعة في تسلسل اللغات المستخدمة على الإنترنت.

وقد قُدرت دراسات حديثة سوق المحتوى الرقمي العالمي لعام ٢٠١١ بأقل من ٣٠٠٠ مليار دولار، ومن المتوقع أن يصل إلى ٣٨٠٠ مليار دولار في عام ٢٠١٥. وتم تقدير حصة المنطقة العربية من سوق المحتوى العام اعتماداً على فرضيات تقريبية بما يقارب ٨٨.٨ مليار دولار لعام ٢٠١١ و ١١٢.٢ مليار دولار لعام ٢٠١٥. ومن ذلك، قُدرت هذه الدراسة قيمة المحتوى الرقمي من إجمالي المحتوى ليكون بحدود ١٨ مليار دولار في عام ٢٠١١ و ٢٦ مليار دولار في عام ٢٠١٥.

لا تختلف توجهات نمو قطاع المحتوى الرقمي في الدول العربية عن التوجهات العالمية، ولكن من الواضح أن منتجات معرفية هامة كالكتب الإلكترونية وبرامج التعليم الإلكتروني ما زالت دون المستوى المقبول في المنطقة، أضف إلى ذلك النقص الواضح في المحتوى الرقمي العربي على الإنترنت لتراث قرون من المعرفة الموثقة باللغة العربية لا تضاهيها لغة حية أخرى.

ولا تزال نسبة الإعلان الرقمي دون ٢% من مجمل الإعلانات التقليدية، مما يدل على ضعف نموذج العمل المعتمد للإعلان الرقمي في دول المنطقة. ومن المتوقع أيضا أن تستمر حصة المحتوى الرقمي المنتج من قبل الأفراد والمستهلكين بالتزايد من خلال شبكات التواصل لأسباب سياسية واجتماعية، وكما هو حاصل خلال السنتين الماضيتين. ويمكن القول أن إمكانات إقامة صناعة محتوى رقمي عربي في المنطقة كبيرة، والفجوة بين ما هو قائم وما هو ممكن كبير، والفجوة هذه هي بمثابة الحافز الاقتصادي للحكومات والقطاع الخاص لتطوير صناعات وخدمات محتوى وطنية وإقليمية، وإقامة شراكات وتعاون على إحداث سوق إقليمية مفتوحة لإنتاج وتطوير وتسويق المحتوى الرقمي العربي.

تتكون هذه الدراسة من أربعة أجزاء ومقدمة تستعرض دور الإسكوا في تنشيط الاهتمام بالمحتوى الرقمي العربي منذ العام ٢٠٠٣. يتناول الجزء الأول التعريف بصناعة المحتوى والترفيه وصناعة الإبداع والترابط بينهما وبين صناعة المحتوى الرقمي والرقمي العربي على وجه الخصوص. ويتناول هذا الجزء أيضا استعراضاً للواقع العالمي لصناعة المحتوى. أما الجزء الثاني فيستعرض واقع المحتوى الرقمي العربي وصناعته. ويهتم الجزء الثالث بالبيئة التمكينية اللازمة لضمان ازدهار صناعة المحتوى الرقمي في منطقة الإسكوا والمنطقة العربية، كالحاجة إلى الاستثمار ودور الحكومات وسياساتها وأهمية التعليم والتدريب لبناء القدرات وكذلك القضايا المتعلقة بالتعاون والشراكات. ويقدم الجزء الرابع ملخصاً للاستنتاجات والتوصيات المقترحة. تحتوي الدراسة كذلك على عدد من نماذج لقصص نجاح على مستوى الدول والشركات من داخل المنطقة وخارجها وضعت بين ثنايا هذه الدراسة كحالات منفصلة عن متن التقرير. وقد استخلصت الدراسة عدداً من التوصيات، أهمها:

- تطوير سياسات واستراتيجيات للمحتوى الرقمي العربي؛
- تحسين نفاذ الحزمة العريضة وكلفتها للمستخدم؛
- دعم إنشاء صناديق وطنية وإقليمية لدعم مشاريع المحتوى الرقمي العربي؛
- دعم وتمويل البحث والتطوير في اللغويات الحاسوبية؛
- الاستثمار في شراكات إقليمية لتطوير وسائل آلية للتعرف الضوئي للرموز العربية لتوفير وسيلة كفوءة لتطوير التطبيقات المتطورة للغة العربية؛
- إنشاء مشاريع لإنتاج الكتب الإلكترونية ودورات التعلم الإلكتروني؛
- تشجيع التعاون ما بين الجامعات والصناعة؛
- إطلاق برامج توعية من خلال وسائل الإعلام موجهة للمدارس والشباب حول جمال وثراء اللغة العربية وقدراتها وتراثها وأهمية المحافظة عليها من خلال الرقمنة؛
- قيام الحكومات بإنشاء صناديق تمويل لدعم مشاريع المحتوى الرقمي العربي وتشجيع قطاع البنوك لرأس المال المغامر ودعم تأسيس الشركات الصغيرة والمتوسطة في مجال صناعة المحتوى الرقمي العربي.

EXECUTIVE SUMMARY

Digital Content technology is transforming traditional knowledge industry structures, business models, and ways of doing things and is forming an important activity in its own right. Creating digital content strategies of increasing importance to national governments. Particularly in cases where cultural and linguistic heritage is highly valued, these programs demonstrate the commitment of the public sector to providing the type of digital content desired by the citizenry. Mechanisms for the production, distribution and marketing of various kinds of digital content are necessary in these plans.

Since 2003, ESCWA has recognized that the digital content industry is one of the main pillars for the knowledge-based economy and could provide many opportunities for investing in ICT in the Arab region. Whereas many challenges face the Arabic-speaking countries in developing this industry, the chances of success are considered enormous and attractive.

Content, in its multitudes of forms, production and delivery constitutes the backbone of knowledge economies and provides the landscape for two distinct, yet overlapping, industries: the Media content industries (MCI) and the creative industries.

According to the Connect Arab Summit 2012, “digital content has many *forms* (text, image, video, animation, audio, maps, or e-applications) and is in use for many *functions* (communication, news, networking, recruitment, entertainment, e-commerce, topic search, location based services, education, training, etc.). There are many *tools* and *technologies* to create and disseminate content. *Online* Digital content is the main driver for development of the Internet Ecosystem. Digital content is also penetrating broadcasting (TVs & Radio), Books, Music, Cinema, as we are becoming more and more a digital world. Digital content should be looked upon within the context of the environment and mechanisms to create, store, communicate and present it. This is not limited to the technological, but also the legal, and cultural dimensions. This holistic view is essential to deal with the right issues for its development”.

The digital content industry and related services have experienced significant growth in recent years, much more than many other business sectors. Several different business models have emerged; some are based on subscriptions; others are based on advertisements; some are contractual to consumers and businesses. It is believed that the development and flourishing of a digital content market depends on broadband connectivity and its affordability, in addition to the creation of quality and popular content.

Globally, the content industry is economically concentrated. The concentration comes as a result of few economic preferences, such as: access to very large venture capital and stock markets, or privileged access to large markets. Therefore, major players set the pace and the rules of the market, as well as the business models, on global and country levels. Many of the emerging businesses need to adapt and compete in this environment. Often, their best fate, if they are successful, would be to be bought off, with a largely overvalued offer, by one of the major players.

The social and political transformation which has been taking place in the Arab region has created a quantum leap in production and access of Arabic content through social networks and other media applications, such as personal reporting and uploading of text and videos. So it was not surprising to find the Arabic language has jumped to seventh position in the list of top 10 languages of internet users by language for 2011.

The global content market for 2011 was estimated by a Price Waterhouse Coopers to be just below \$3000 B and is predicted to increase to \$3800 B in 2015. The ESCWA/ Arab region’s portion of the content market is estimated to be \$88.8 B and \$112.2 B for 2011 and 2015 respectively. And, if the assumptions

made in this study are plausible, then the expected portion of DAC, out of total content for the region, is \$18 B in 2011 and \$26 B in 2015.

Although the region is following global trends in content growth, one can easily spot gaps in segments of digital content such as e-Books and e-Learning. These segments have not developed as quickly as expected. Furthermore, centuries of heritage in the form of books and documents in Arabic provide excellent opportunities for digitization.

Digital advertising is also identified as a key issue for the growth of DAC in the region. According to Arab Content 2012, only 2% of total advertising is in digital form. This means that one of the major sources of revenues for typical business models is very weak in the region.

The end user/consumer segment of content is also expected to grow due to the growth of interest in social networks for political and social reasons. This trend has enhanced in the region in the last two years.

It is evident that the potential for a digital content industry in the region is high. A gap between what can be done and what is available should provide incentives to governments and the private sector to promote growth and development of digital content industries and services in the region. The Arabic language is an effective platform for the region which justifies collaboration and an open regional market approach to its development.

The study consists of four sections and a preview, in which, an account of ESCWA contributions to the subject of digital Arabic content since 2003 is summarized. Section I deals with definition of the two major sectors which provide the feed for digitization: the media content and the creative sectors, with large portions of both sectors being digitized, or are available for digitization in the future. Section I also provides an overview of the global status of digital content. Section II addresses the economic aspects of the DAC market. It provides an overview of the regional status of DAC, its structure and segmentation, estimation of the content market and other related topics. Section III deals with issues related to the industry's enabling environment, such as investments, government roles and policy, education and training, and partnership and collaboration. Section IV summarises a number of conclusions and proposes a list of recommendations which were found important to bring to the attention of the reader. Important amongst them are the following:

- Development of *policies and strategies* for DAC development;
- Improve the penetration and affordability of broadband;
- The establishment of national/ regional foundations for the DAC industry;
- Support and fund research and development in computational linguistics;
- Invest in a regional partnership to develop automated tools for optical character recognition (OCR) for Arabic that should provide users with reliable, robust and fast tools for applications;
- Establishment of content industries for e-Books and e-Learning in the Arabic language;
- Encourage local/regional universities to partner with the industry;
- Launch awareness campaigns through media, directed at schools and the young, on the beauty and wealth of the Arabic language, its heritage and culture, and the importance of preserving it through the process of digitization;
- Governments' establishment of funds and encouragement of the banking sector in introducing venture capital support for start-ups and the creation of SME in DAC industry sector.

PREVIEW - ESCWA and Digital Arabic Content

ESCWA recognized that the digital content industry provides many opportunities for investing in ICT in the Arab region as one of the main pillars for the knowledge-based economy. Whereas many challenges face the Arabic-speaking countries in developing this industry, the chances of success are considered enormous.

In 2003, following an expert-group meeting on Digital Arabic Content (DAC), the Information and Communication Technology Division at ESCWA launched the "Arabic Content Initiative" which aimed at the development of the digital content industry in the ESCWA/ Arab region. Within the framework of this initiative, ESCWA commissioned two studies; "Enhancing Arabic content on the digital networks" in 2003, and "Digital Arabic Content: opportunities, priorities and strategies" in 2005². In 2007, ESCWA also organized an on-line workshop on promoting the digital Arabic content industry during January-March 2007 in which about 20 participants from countries in the region discussed a number of issues related to the DAC industry.

The recommendations resulting from the workshop focused on the role of the government as an enabler and funding source as well as on the need for national and regional DAC strategies, improving the regional ICT infrastructure, developing human resources, encouraging research and development (R&D) in natural language processing, regional collaboration and coordination in R&D activities, raising awareness in the regional media and content sector, and motivating the private sector to enter this industry. The full set of recommendations is available on the ESCWA Website³.

The importance of giving high priority to the development of digital local content was stressed in the "Declaration of Principles" of the first phase of the World Summit on the Information Society (WSIS), particularly through action line C8 on cultural diversity and identity, linguistic diversity and local content. The same was also reflected in the "Regional Plan of Action for Building the Information Society", which was prepared by ESCWA in 2004, for the "Arab Plan of Action" and was adopted by the Arab Telecommunications and Information Council of Ministers, and the "Tunis Agenda for the Information Society" during WSIS-II in 2005.

At the level of industry, digital content provides numerous opportunities for investment in the Arab region. And despite the challenges facing the development of this industry, the opportunities for success are extensive, given the increased use of the Internet for socioeconomic activities and the presence of more than 370 million Arabic speakers in the region. Augmented by Arabic-speaking emigrants and their families worldwide, these numbers ensure a large potential market for DAC products and applications. The market should encourage the establishment of small and medium enterprises (SMEs) for developing DAC applications; which would, in turn, allow for increased employment opportunities in the ICT domain and a positive step towards knowledge-based economies.

Experiences from developed countries demonstrate the importance of government support for digital content in the national economies. A number of serious initiatives drawn from countries, including few from the ESCWA region, provide encouragement for replications and further initiatives. For example, Malaysia has launched an initiative for the digital content industry targeting young entrepreneurs entitled "The Integrated Content Development Program". This initiative comprised two funds: one is specific for educational content and the other for social and community content. For example, Syria launched a national initiative to lay the foundation for a pioneering content industry through investments.

² Both are available at: <http://www.escwa.un.org/divisions/projects/dac/docs.asp>

³ http://www.escwa.un.org/divisions/ictd/workshop/forum_a/default.asp

Between 2007 and 2009 a project entitled “Promotion of the Digital Arabic Content Industry through Incubation”, was implemented by ESCWA. The project aimed at contributing to the growth of the DAC industry in Western Asia by supporting and promoting the development of DAC applications using incubation facilities⁴.The project’s outcomes included three studies on DAC in the region covering the latest trends, business models and incubation requirements. The project also launched a series of DAC competitions in five member countries for selecting the best innovative DAC projects that contribute to various socio-economic sectors. Winning proposals were incubated at partner technology incubators.

As a result of the success achieved in this phase of the project, and the high quality maintained while conducting the competitions including the evaluation criteria used,⁵ESCWA decided to repeat the DAC competition in subsequent years and in several countries through a second phase of the project starting 2012.

ESCWA’s reports and publications on digital Arabic content are listed in Appendix (I).

⁴ Further information relating to the project is available at: <http://www.escwa.un.org/divisions/projects/dac/index.asp>.

⁵At least two of the incubated DAC applications have turned into active companies in the market.

I. GLOBAL TRENDS IN DIGITAL CONTENT RELATED INDUSTRIES

A. DEFINITIONS

Content in its multitudes of forms, production and delivery constitutes the backbone of knowledge economies and provides the landscape for two distinct, yet overlapping industries: the Media and Content Industries (MCI) and the creative industries.

This study adopts the OECD definition of MCI which states:

“The production (goods and services) of a candidate industry must primarily be intended to inform, educate and/or entertain humans through mass communication media. These industries are engaged in the production, publishing and/or the distribution of content (information, cultural and entertainment products), where content corresponds to an organized message intended for human beings”⁶.

The definition deliberately avoids the mention of the word “digital” or ICT. Underlying this definition are the categories from the new statistical classification system for economic activities (ISIC rev.4⁷; United Nations, 2007). See Table (1) and Figure (1) for details.

MCI is sometimes considered as part of the creative industries sector, rather than overlapping. Creative industries are defined by UNCTAD as “the cycles of creation, production and distribution of goods and services that use creativity and intellectual capital as primary inputs; constitute a set of knowledge-based activities, focused on but not limited to arts, potentially generating revenues from trade and intellectual property rights; comprise tangible products and intangible intellectual or artistic services with creative content, economic value and market objectives; stand at the crossroads of the artisan, services and industrial sectors; and constitute a new dynamic sector in world trade”⁸.

Table (1). ISIC rev4 of the definition of the MCI sector

| Media Content | | Telecommunications and Software/computer programming | |
|---------------|--|--|--|
| ISIC | Description | ISIC | Description |
| 581 | Publishing of books, periodicals and other publishing activities | 61 | Telecommunications |
| 5811 | Book publishing | 611 | Wired telecommunications activities |
| 5812 | Publishing of directories and mailing lists | 6110 | Wired telecommunications activities |
| 5813 | Publishing of newspapers, journals and periodicals | 612 | Wireless telecommunications activities |
| 5819 | Other publishing activities | 6120 | Wireless telecommunications activities |

⁶OECD Joint Research Centre, Statistical, Ecosystems and Competitiveness Analysis of the Media and Content Industries, 2012.

⁷The **International Standard Industrial Classification of All Economic Activities** is a United Nations system for classifying economic data. The United Nations Statistics Division describes it in the following terms: Wide use has been made of ISIC, both nationally and internationally, in classifying data according to kind of economic activity in the fields of production, employment, gross domestic product and other statistical areas. ISIC is a basic tool for studying economic phenomena, fostering international comparability of data, providing guidance for the development of national classifications and for promoting the development of sound national statistical systems.

⁸UNCTAD, creative Economy, 2010.

| | | | |
|------|--|------|--|
| 59 | Motion picture, video and television programme production, sound recording and music publishing activities | 613 | Satellite telecommunications activities |
| 591 | Motion picture, video and television programme activities | 6130 | Satellite telecommunications activities |
| 5911 | Motion picture, video and television programme production activities | 619 | Other telecommunications activities |
| 5912 | Motion picture, video and television programme post-production activities | 6190 | Other telecommunications activities |
| 5913 | Motion picture, video and television programme distribution activities | 62 | Computer programming, consultancy and related activities |
| 5914 | Motion picture projection activities | 620 | Computer programming, consultancy and related activities |
| 592 | Sound recording and music publishing activities | 6201 | Computer programming activities |
| 5920 | Sound recording and music publishing activities | 6202 | Computer consultancy and computer facilities management activities |
| 60 | Programming and broadcasting activities | 6209 | Other information technology and computer service activities |
| 601 | Radio broadcasting | | |
| 6010 | Radio broadcasting | | |
| 602 | Television programming and broadcasting activities | | |
| 6020 | Television programming and broadcasting activities | | |
| 639 | Other information service activities | | |
| 6391 | News agency activities | | |
| 6399 | Other information service activities (not elsewhere classified) | | |

Table (2) and Figure (2) show the categorization of creative industries based on the SIC code⁹. The outcome of the digitization process of content created or produced by MCI and/or creative industries is termed **digital content**.

The digital content industry was described in the Connect Arab Summit 2012 as follows:

Digital Content has many *forms* (text, image, video, animation, audio, maps, or e-applications) and is in use for many *functions* (communication, news, networking, recruitment, entertainment, e-commerce, topic search, location based services, education, training, etc.). There are many *tools* and *technologies* to create and disseminate content. *Online* Digital content is the main driver for development of the Internet Ecosystem. Digital content is also penetrating broadcasting (TVs & Radio), Books, Music, Cinema, as we are becoming more and more a digital world. Digital content should be looked upon within the context of the environment and mechanisms to create, store, communicate and present it. This is not limited to the technological, but also the legal, and cultural dimensions. This holistic view is essential to deal with the right issues for its development. This topic has been addressed directly by the World Summit on the Information Society (WSIS) where ITU is the Co-Facilitator of WSIS Action Lines: C3 (Access to *information and knowledge*), C8 (Cultural diversity and identity, linguistic diversity and *local content*)¹⁰.

⁹The **Standard Industrial Classification (SIC)** is a United States government system for classifying industries by a four-digit code. Established in 1937, it is being supplanted by the six-digit North American Industry Classification System (NAICS code), which was released in 1997; however certain government departments and agencies, such as the U.S. Securities and Exchange Commission (SEC), still use the SIC codes.

¹⁰ Connect Arab Summit 5-7 March 2012 Doha, Qatar.

Globally, the landscapes of media content industry, creative industry and digital content industry are converging and the more the convergence the more mature and sustainable the resulting landscape becomes. See Figure (3).

ESCWA is presently in the process of formulating a formal definition for Digital Arabic Content and its industry. The present definitions are as follows:

Digital Arabic Content: Any content in Arabic represented in digital form on the Internet (or on CD, DVD and other formats). It includes web-sites, portals, and e-services, as well as audio and video content. It also includes software, databases, open source products supporting Arabic language functionalities and tools, such as, but not limited to, Arabized software interfaces such as word processors, Arabic language processing software such as speech and character recognition programs, search and translation engines, etc.

Digital Arabic Content Industry Is the collection of DAC related products and services generated, produced or distributed by organizations and enterprises of all sizes, as well as start-ups and individuals which enable access, use and exchange of Arabic content.

The tools involved in the various stages of creating digital content are shown in Figure (4)¹¹

¹¹UNESCO, OECD, The Relationship Between Local Content, Internet Development and AccessPrices.

**Figure (1). OECD Classification of Media and Content Industries (MCI)
Based on ISIC Rev. 4**

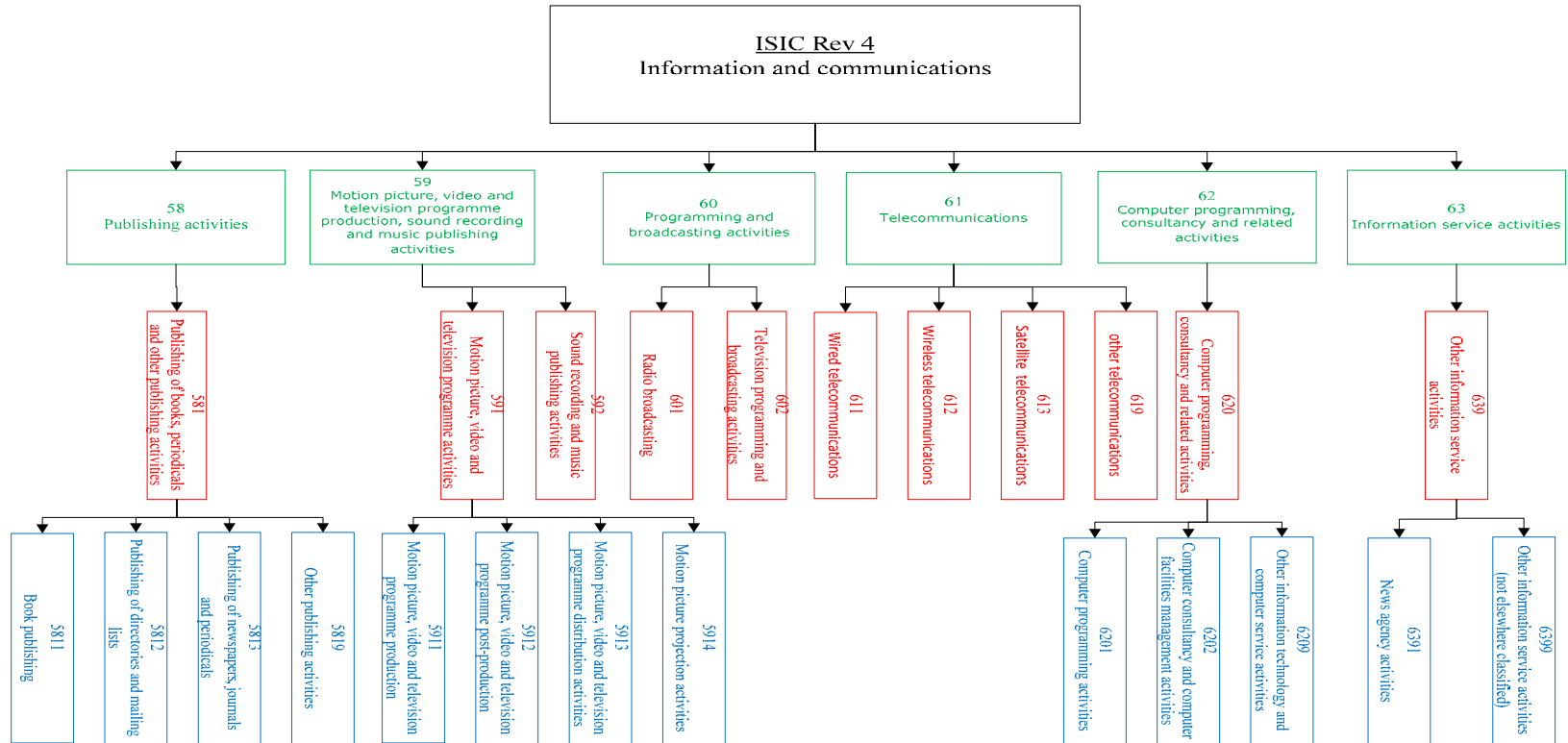


Table (2).Categorization of creative industries

| Sector | SIC code | Description | Sector | SIC code | Description |
|--|-----------------------------------|---|--|----------|--|
| Advertising | 74.40 | Architecture and engineering activities and related technical consultancy | Publishing | 22.11 | Publishing of books |
| Art and antiques | 52.48 | Other retail in specialized stores | | 22.12 | Publishing of newspapers |
| | 52.50 | Retail sale in specialized stores | | 22.13 | Publishing of journals and periodicals |
| Crafts | | Majority of businesses too small to be picked by business surveys | | 22.15 | Other publishing |
| Design | | No matches | | 92.40 | News agency activities |
| Designer fashion | Selected 4-digit codes, 17 and 18 | Clothing manufacture | Software, computer games and electronic publishing | 22.33 | Reproduction of computer media |
| | 74.87 | Other business activities not classified elsewhere | | 72.21 | Publishing of software |
| Video, film and photography | 22.32 | Reproduction of video recording | | 72.22 | Other software consultancy and supply |
| | 74.81 | Photographic activities | Radio and TV | 92.20 | Radio and television activities |
| | 92.11 | Motion picture and video production | | | |
| | 92.12 | Motion picture and video distribution | | | |
| | 92.13 | Motion picture projection | | | |
| Music and the visual and performing arts | 22.14 | Publishing sound recordings | | | |
| | 22.31 | Reproduction of sound recording | | | |
| | 92.31 | Artistic and literary creation and interpretation | | | |
| | 92.32 | Operation of arts facilities | | | |
| | 92.34 | Other entertainment activities not classified elsewhere | | | |
| | 92.72 | Other recreational activities not classified elsewhere | | | |

Figure (2).UNCTAD Classification of creative industries

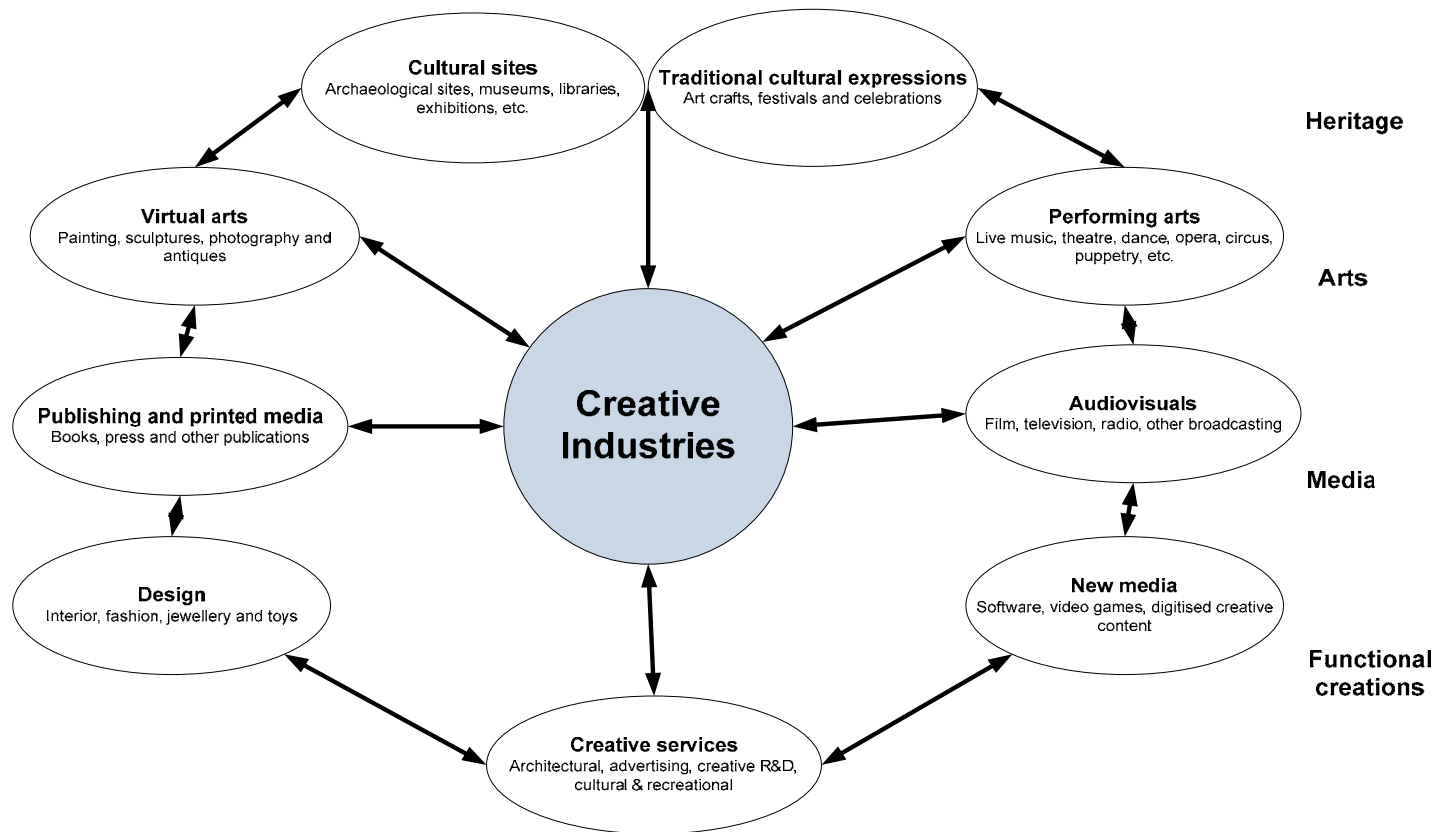


Figure (3). Convergence of creative, media and digital landscapes between 1990 and 2020

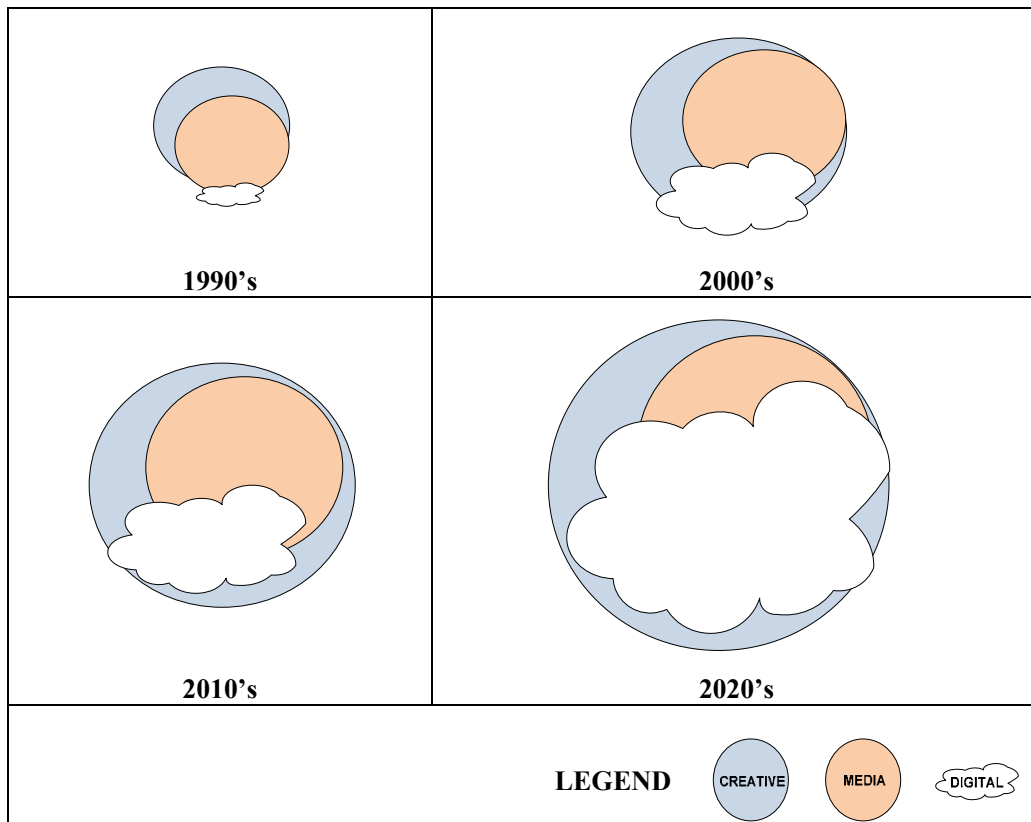
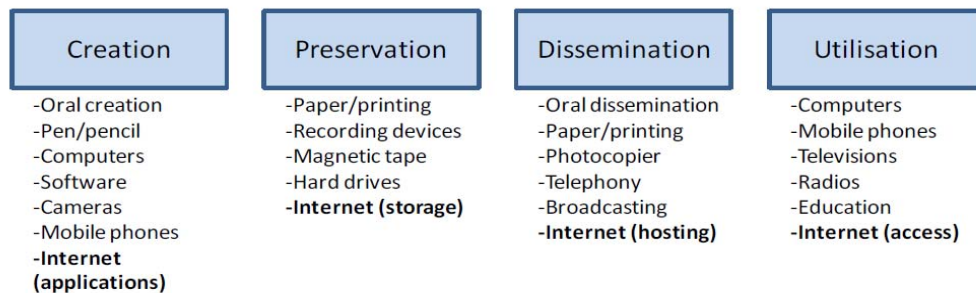


Figure (4). Tools required in digital content



Source: OECD

In all these definitions, care should be made to the notion of industry and market. Some of the aspects of the digital content are by nature services provided to citizens and the community, who have rights to access them, such as the right to information, guaranteed by international conventions. Issues such as accessibility and affordability tend to categorize some of these digital services, as public services, comparable to electricity or drinking water. Other issues are also subjects to serious controversies, such as the balance between the necessity of protecting property rights of content, and the necessity to protect the right to information and to fight against market trusts.

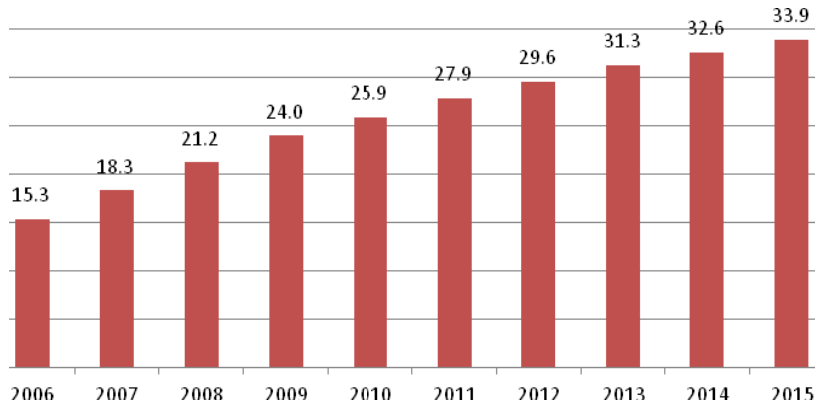
B. GLOBAL STATUS

Global consumer spending on content and software for 2010 was estimated by Gartner to be US\$200 billion. Growth expectations for the next few years are different for the various content industries. For example, forecasts for online gaming revenue, are predicted to grow from \$11.9 billion in 2011 to \$28.3 billion in 2015 while spending on public cloud services is expected to grow five times faster than overall IT enterprise spending; 19 percent annually through 2015¹². In 2011, the fastest growing retail e-commerce category in the US was the digital content and subscriptions including downloads such as music, movies, TV shows and e-books with a 26% growth rate. Across the EU, the cultural and creative sectors account for 2.6% of the GDP and employ over 3% of the workforce¹³.

The year 2009 was quite remarkable for the international media industry, with the global economic crisis impacting every region of the world and driving significant waves of structural and financial restructuring in the industry. However, 2010 saw the beginning of recovery of the global economy helping spending on content and media to rise by 4.6% following its 2.4% decrease in 2009. In its Global entertainment and media outlook 2011–2015, PricewaterhouseCoopers (PwC) arrives at a number of interesting observations¹⁴:

1. The digital share of the entertainment and media market increased from 16.3% in 2006 to 27.9% in 2011 and is expected to rise to 33.9% in 2015, see Figure (5).

Figure (5). Percentage of Digital Spending of Global Entertainment and Media Spending



Source: PricewaterhouseCoopers. Global entertainment and media outlook 2011–2015.

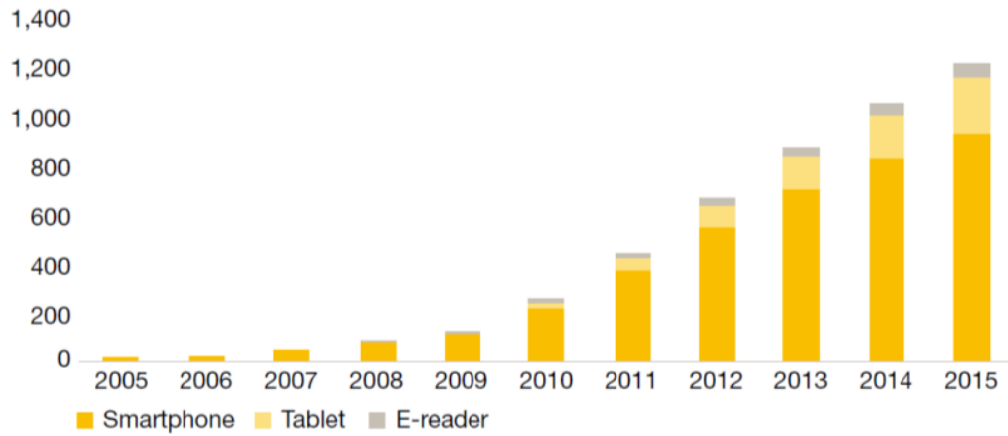
2. The annual global device sales, in millions of units, including smart phones, tablets and e-readers, increased from less than 50 million in 2006 to about 500 million in 2011, and are expected to rise to about 1200 million in 2015. See Figure (6).

¹² BIS, the Supply of Digital Content, Impact assessment, July 2012, www.bis.gov.uk.

¹³ Ibid

¹⁴ Price Waterhouse Coopers, Global Entertainment and Media Outlook 2011 – 2015 (August 2011)

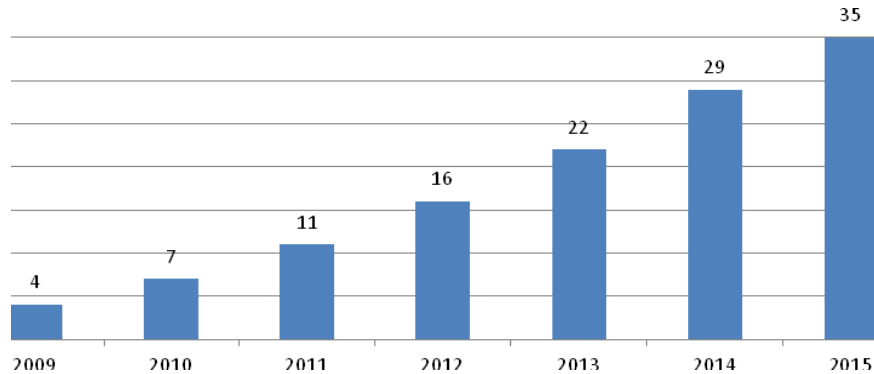
Figure (6) Global device sales (millions)



Sources: PricewaterhouseCoopers LLP, Wilkofsky Gruen Associates

- Mobile applications spending came to around US\$4 billion in 2009 and is expected to rise to US\$35 billion in 2015. See Figure (7).

Figure (7). Mobile Apps spending US\$ billions



- Global internet access spending¹⁵ increased from about \$167 million in 2006 to about \$270 million in 2010 and is expected to reach \$407 million in 2015. See Table (3).

¹⁵ Internet access spending is defined by PwC as fees paid by consumers to wired Internet services providers (ISPs) and to wireless carriers for Internet access, whether provided as a stand-alone service or as part of a service bundle wherein the Internet component is estimated. Source: <http://www.pwc.com/gx/en/global-entertainment-media-outlook/segment-insights/internet-access.jhtml>.

Table (3) Global Internet access spending by region (wired and mobile) US\$ million

Global Internet access spending by region: wired and mobile (US\$ millions)

| Region | 2006 | 2007 | 2008 | 2009 | 2010p | 2011 | 2012 | 2013 | 2014 | 2015 | 2011-15 CAGR |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| North America | 33,882 | 38,771 | 41,900 | 44,158 | 48,081 | 52,581 | 57,115 | 61,502 | 66,298 | 71,542 | |
| % Change | 14.3 | 14.4 | 8.1 | 5.4 | 8.9 | 9.4 | 8.6 | 7.7 | 7.8 | 7.9 | 8.3 |
| EMEA | 58,07 | 67,026 | 76,951 | 84,188 | 91,720 | 11,497 | 110,497 | 111,307 | 123,906 | 135,303 | 146,816 |
| % Change | 22.2 | 15.5 | 14.8 | 9.4 | 8.9 | 9.6 | 10.8 | 11.3 | 9.2 | 8.5 | 9.9 |
| Asia Pacific | 69,529 | 84,264 | 97,825 | 107,469 | 116,374 | 123,698 | 132,698 | 142,613 | 151,502 | 159,675 | |
| % Change | 32.5 | 21.2 | 16.1 | 9.9 | 8.3 | 6.3 | 7.4 | 7.4 | 6.2 | 5.4 | 6.5 |
| Latin America | 5,935 | 7,862 | 9,781 | 11,434 | 13,752 | 16,821 | 19,717 | 22,942 | 26,368 | 29,838 | |
| % Change | 42.4 | 32.5 | 24.4 | 16.9 | 20.3 | 22.3 | 17.2 | 16.4 | 14.9 | 13.2 | 16.8 |
| Total | 167,353 | 197,923 | 226,457 | 247,249 | 269,927 | 293,597 | 320,945 | 350,963 | 379,471 | 407,871 | |
| % Change | 25.1 | 18.3 | 14.4 | 9.2 | 9.2 | 8.8 | 9.3 | 9.4 | 8.1 | 7.5 | 8.6 |

Sources: PricewaterhouseCoopers LLP, Wilkofsky Gruen Associates

In addition, paidContent.org publishes annual lists of the top 50 companies dealing with digital content¹⁶. The global list for 2012, published in July 2012, was topped by Google with annual revenue of US\$36.4 billion, followed by China Mobile with annual revenue of US\$7.58 billion. The total revenue for the top 50 companies amounted to around US\$146 billion, which is around 50% of the total for 2011 in Table (3). Table (4) shows the top 10 companies with their revenues.

Google relies on its original advertising system to make most of its revenues although it has tried to diversify through selling enterprise apps services. The core paid-links business continues to grow rapidly by attracting a quarter more paid clicks in 2011 than in 2010. Google reports that 96% of its revenues are generated by contextual and display advertising although it is 100% digital.¹⁷

Table (4). Top 10 digital content companies 2012

| Position | Company name | Sector | Revenue Us\$ million |
|----------|---------------------------------|----------------------|-------------------------|
| 1 | Google | Search | 36400 |
| 2 | China Mobile | Telco | 7580 |
| 3 | Bloomberg | Business information | 7000 |
| 4 | Reed Elsevier | Business information | 5930 |
| 5 | Apple | Diversified | 5400 |
| 6 | Yahoo | Diversified | 4990 |
| 7 | WPP | Advertising | 4710 |
| 8 | Thomson Reuters | Business information | 4710 |
| 9 | Tencent | Diversified | 4460 |
| 10 | Microsoft | Diversified | 3930 |

The second on the list is China Mobile which has achieved a large scale operating in the world's most populated nation. China Mobile's subscribers, which amount to 649 million, use its various services such as the Wireless Music Club, ringtone and music download service, mobile news, movie and TV videos, books, magazines, comics and email. China's app use jumped by 870% through 2011, which boosted China Mobile's apps and services revenue by 12 percent. Its Mobile Market app store has 158 million registered users and clocked 630 million 2011 downloads¹⁸.

¹⁶<http://paidcontent.org/2012/07/31/pc50/>

¹⁷ibid

¹⁸ Ibid

As shown in the examples above, the digital content industry and services have experienced significant growth in the last years, much more than many other business sectors resulting in the emergence of new business models. Some are based on subscriptions; others are based on advertisements; some are contractual to consumers and businesses. In all cases, the development of a market depends on connectivity and affordability (i.e. purchasing power).Box (1) explains the recent growth in the digital content market in the UK.

Box (1). The digital content market in the UK– large and growing *

The UK has a high internet access penetration rate. Ofcom's Communications Market Report 2011 found that total UK broadband take-up has risen from 41% in 2006 to 74% in 2011. A wide range of digital content is accessed by internet users in the UK including computer software, videos, films, music, games, e-books, ring tones and apps. Consumers have access to this content in a variety of ways, both through physical media and intangible ones such as downloads via the internet. The development of web services to support the delivery of digital content to its users, has gathered pace as internet adoption in the UK and globally has grown, and with improvements in internet technology such as faster internet speeds through broadband internet availability.

Around four in ten home internet connections are used for playing games (38%), downloading music or videos (37%) or watching videos (40%). A recent study by the European Commission carried out by Europe Economics, indicated that a similar situation can be found in the rest of the EU, with, for example, 79% of respondents having used digital music in the last 12 months.

Other elements indicating a growing market for digital content in the UK are: the broadening of access methods (69% access the internet at home via a laptop or PC, 31% on a mobile phone, 9% via a games console and 4% using an e-reader) and the higher proportion of younger age groups accessing digital content (92% of 16-24 year olds access music compared with 58% of 55-64 year olds)..

Sources:

- BIS – Department for Business Innovation & Skills, The Supply of Digital Content: Impact assessment, July 2012.
- Ofcom. Communications Market Report 2011. Available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/UK_CM_2011_FINAL.pdf

However, and as shown above, this industry is economically concentrated, even if it is rapidly evolving and that many of the leading companies did not even exist few years ago. Such concentration comes as a result of little economic specificity: access to very large venture capital and stock markets (Google, Apple), privileged access to large markets (China mobile, Thomson Reuters). The major players set then the pace and the rules of the market, as well as the business models, on the global and countries' levels. Most of emerging businesses need to adapt and compete in this environment. Often, their best fate, if they are successful, is to be bought off, largely overvalued, by one of the majors.

National strategies to promote digital industries rarely address this issue of concentration as such, and its implications on the necessity to create a proper market environment and business conditions for emerging and rapidly evolving digital industries and services, made mostly of small medium enterprises.

II. THE ECONOMIC ASPECTS OF DAC

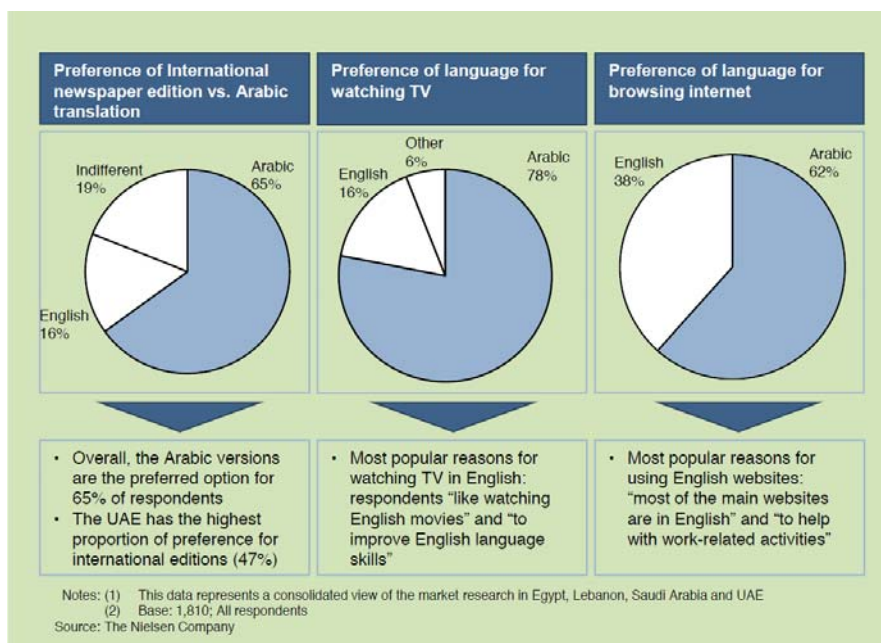
A. DAC PRESENT STATUS

While connectivity is still an issue, several countries in the region have worked in recent years on developing digital content through initiation of projects with relatively large Arabic content. One of the earliest that started in 2000 and is still active, is the Centre for Documentation of Cultural and Natural Heritage, CULTNAT of Egypt¹⁹. In Oman, the Ministry of Culture and Heritage digitized, and thus preserved, a total of 2,000 manuscripts about Oman collected nationally and regionally. Also Saudi Arabia and Qatar have recently published strategies and plans to develop digital content.

Several countries from the region have started to promote private initiatives in digital Arab content; for example, Qatar established a Digital Content Incubation Centre to promote entrepreneurship related to the production of Arabic content as well as a Creative Commons affiliate in Qatar to encourage and protect digital creativity. Twofour54 in Abu Dhabi has also two initiatives: Creative Lab, which provides funding to promising ideas originated in the Arab world that are focused on the Arabic-speaking market, and Apps Arabia, which invests in mobile applications and acts as an interface between application developers and those with ideas for application content. The initiative of King Abdullah for Arabic Content in Saudi Arabia²⁰ has over 60 projects and covers several aspects for developing digital content.

The Arab Media Outlook 2009 – 2013 presented data on media language use in the Arab region (see Figure 8). Figures 8 to 12 depict the top Arabic websites in Egypt, Lebanon, Saudi Arabia and the UAE.

Figure (8). Language Preferences for Media Consumption in the Arab region

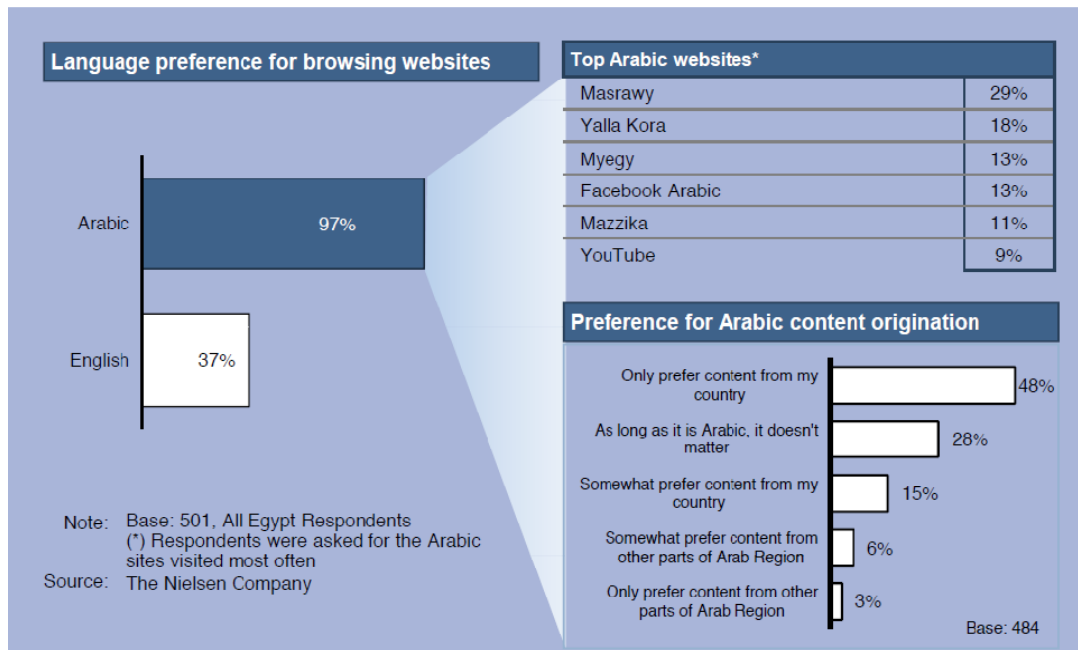


Source: Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts and Analysis of Traditional and Digital Media in the Arab World available at <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>

¹⁹<http://www.cultnat.org/>

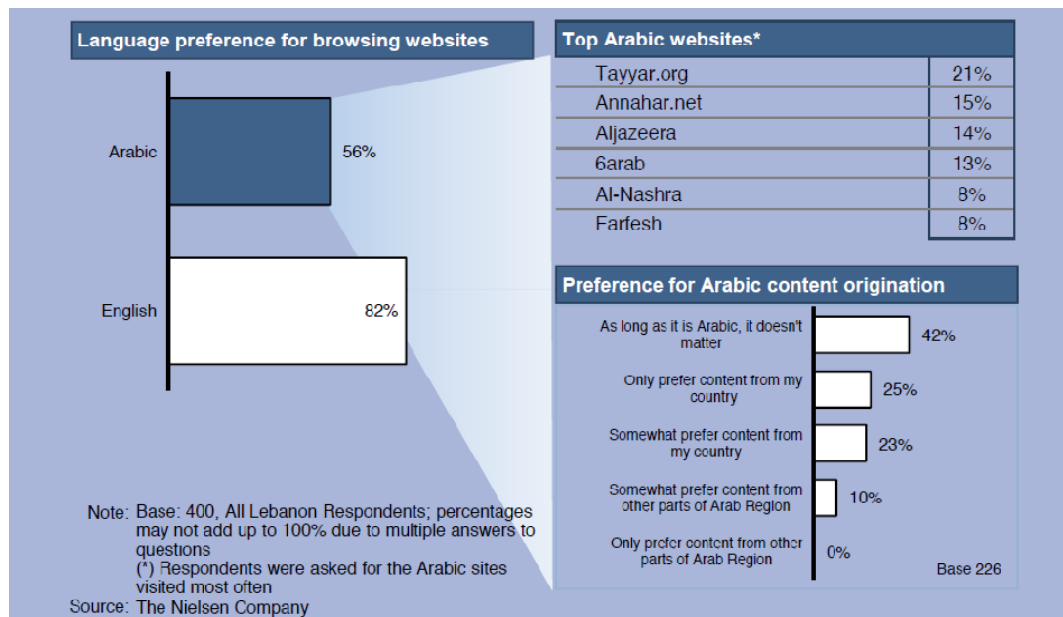
²⁰<http://www.econtent.org.sa>

Figure (9). Online media consumption in Egypt: market research results



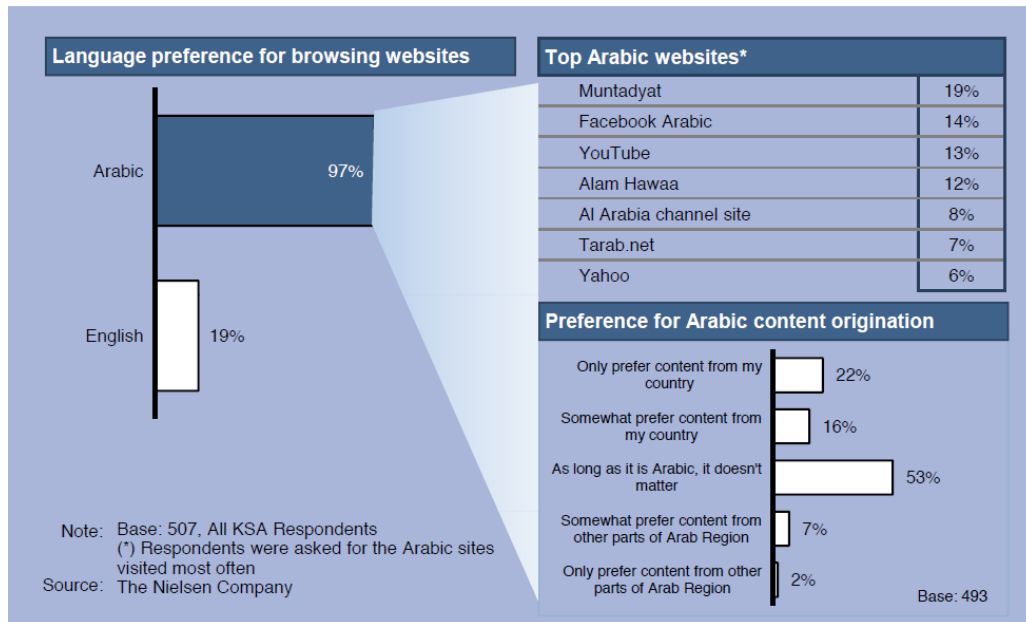
Source: Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts and Analysis Of Traditional And Digital Media In The Arab World, <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>

Figure (10). Internet usage in Lebanon: market research results



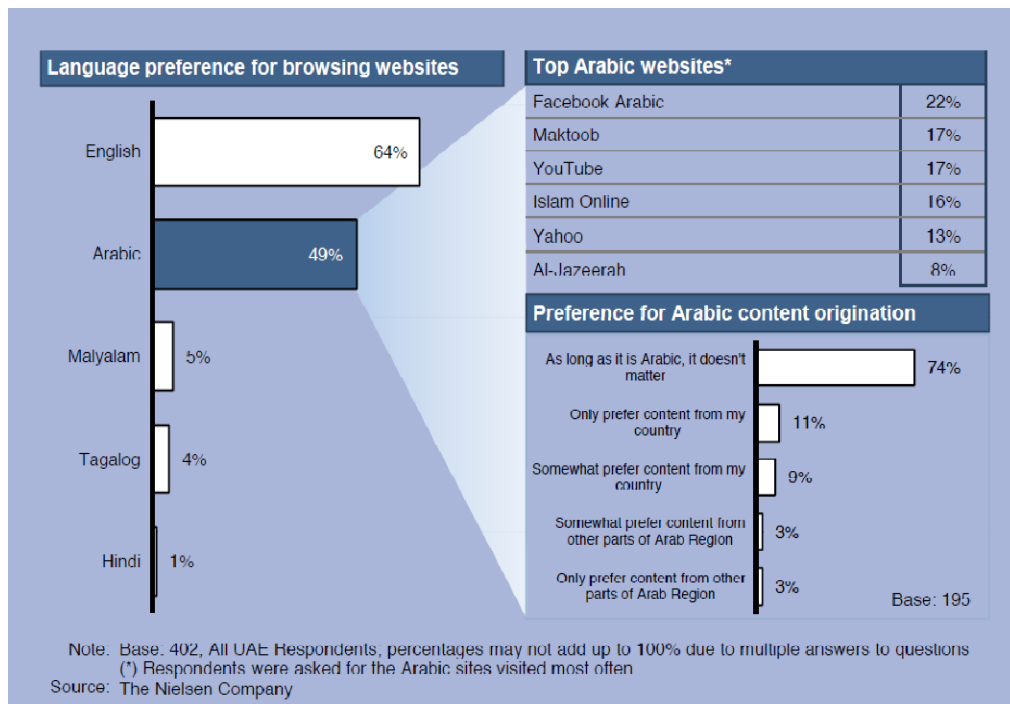
Source: Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts and Analysis of Traditional And Digital Media in the Arab World, <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>

Figure (11). Internet usage in KSA: market research results



Source: Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts And Analysis Of Traditional And Digital Media In The Arab World, <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>

Figure (12). Internet usage in the UAE: market research results



Source: Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts And Analysis Of Traditional And Digital Media in The Arab World, <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>

Another factor supporting the increase in DAC is the major shift towards mobile applications as the number of mobile devices considerably exceeded the number of PCs in the region and mobile connectivity has become much larger than fixed internet connectivity. Content developers are now keen on making mobile-compatible versions of their applications, or in some cases mobile-only versions. Social networking, applications and entertainment are increasingly being accessed through smart mobile platforms²¹.

Content aggregators have increased in number within the region. These are organizations that gather content from different content from publishers to sell to mobile operators. The aggregated content is then sold by mobile operators to end users as content value-added service.²² Other models have also emerged that link different types of services, see Box (2) for an example.

Box (2). Intigral – Linking content, telecommunications and end users

Intigral is a B2B provider of digital media content services to telecommunication operators. Their scope of operations includes content aggregation, creation, re-purposing and enhancing for delivery across multiple platforms; namely mobile, web and IPTV. The different mobile channels used for content delivery include SMS, MMS, WAP, and STK⁽¹⁾.

It was established in 2009 as a joint venture between Saudi Telecom Company (STC) and Malaysia's All Asia Networks (ASTRO). At first, STC owned 51% of the company but then opted towards the end of 2011 to acquire 20% more of the company for USD 24 million⁽²⁾ by buying out the Saudi Research and Marketing Group.

Intigral provides a model for linkage between content, telecommunications and end users and gives special focus to Arabic content⁽³⁾ in various areas including health, entertainment, sports, lifestyle, and religion. Thus far, they have clients in Saudi Arabia, Bahrain, Kuwait, Jordan and the Sudan. They work with more than 400 content providers in the Arab world, including local providers, and 20 content providers globally⁽⁴⁾.

Currently, Intigral delivers 180 TV channels and has a broadcast, editing and post-production center in Dubai. They have recently launched an advanced interactive TV service in Saudi Arabia which delivers video content such as live TV, Catch-Up TV and Video-on-Demand (VOD) to STC broadband customers⁽⁵⁾. Their web services are essentially used as marketing tools for telecom operators allowing customers to purchase products and services and interact with operators online. To that end, Intigral provides the services of designing, developing, and managing websites. The company also develops mobile apps either exclusively for STC subscribers or for general mobile users, and which vary in their compatibility with different operating systems (iOS, Android, and RIM). Examples of their mobile apps include "Your Health" providing information on various health issues and "Speed/Motor Show" which provides content on motor shows.

⁽¹⁾ <http://www.intigral.net>

⁽²⁾ <http://www.zawya.com/story/ZW20111214000093?q=intigral/>

⁽³⁾ <http://varietyarabia.com/Does.Viewer/64b8cef1-b60d-499d-a463-2e94aa1b6463/default.aspx>

⁽⁴⁾ <http://www.zawya.com/story/ZAWYA20111215031829?q=intigral/>

⁽⁵⁾ <http://teletimesinternational.com/interview/6654/intigral-has-gathered-a-set-of-unique-skills?lang=es>

The United Arab Emirates is one of the leading countries in the region, with shares in around 60 per cent of the mobile application production firms in the Middle East. Mobile content development is flourishing in the UAE due to its enabling environment supported by a strong infrastructure, cost-effective ICT and

²¹ E/EACWA/ICTD/2011/4, Regional Profile of the Information Society 2011, March 2012.

²² *ibid*

legislation that facilitates and encourages innovation. Flagship Projects is a company based in the UAE that commands 30 per cent of the professional mobile applications in the local market²³.

In Jordan, Rubicon Group Holding was founded in 2004 and has since succeeded in digital content production for entertainment and education, including television and web applications. Rubicon produces educational and gaming products, some of which were made in collaboration with Metro-Goldwyn-Mayer (MGM) studios. The media industry in Jordan was able to attract international investors in the case of Maktoob, the largest Arab web portal that was purchased by Yahoo in 2009 for a record \$164 million, even though at the time of sale, Maktoob had less than \$ one million in cash and less than \$2 million in contracted revenues²⁴. More information on the ICT sector in Jordan is presented in Box (3).

Box (3). The ICT Sector in Jordan – A Selection of Digital Arabic Content Companies

The ICT Association of Jordan (int@j) commissioned a survey in 2011 on the IT and IT Enabled Services (ITES) industry in Jordan. The survey results* indicated that the total IT revenue for Jordan exceeded US\$738 million of which the revenue of exports exceeded US\$230.5 million indicating a 14% growth rate in export revenues leading to 1% growth rate in total revenue from the previous year (2010). According to the survey results, employment in IT and ITES grew to approximately 11,235 direct employees, and reached 4,600 in the telecommunications sector.

The survey showed an increased demand in the GCC market, particularly Saudi Arabia, for ICT products and services developed in Jordan. Revenues generated from exports were distributed as follows: Saudi Arabia (39%), USA (9%), UAE (8.5%), Iraq (6%), Qatar (4%), Oman (4%), Netherlands (3%), Palestine (3%), UK (2%), and Sudan (2%). The rest of export revenues were distributed among 48 countries within and outside the region. On the other hand, high value-added IT activities generate around 90% of exports and around 35% of the domestic revenues demonstrating that the IT industry brings high value to the Jordanian economy mainly in exports.

The following are a few examples of Jordanian companies dealing with content:

Ketab Technology, located in Amman, is a company specialized in the development of interactive educational solutions based on patented technology products. The company is particularly specialized in interactive notebooks that allow the user to interact with its surface using a specific pen or by touch. The purpose of the interactive whiteboard is to improve the learning experience and increase student engagement. As an example of the advantages of such interactive white boards, the students can directly save the notes displayed on memory sticks instead of spending time copying on notebooks. Ketab's clients include schools, universities and governments in the Middle East and North Africa region and most notably Jordan, Oman, Saudi Arabia, and the UAE.

Sources: <http://www.ketabtech.com>, <http://www.ameinfo.com/218510.html>, and <http://www.ebe.com.lb/pictures/pdf/110107123605758.pdf>

Mixed Dimensions focuses on delivering cross platform products to simplify the development of interactive 3D applications, such as games. GameDraw is the company's game development platform. The company is also involved in developing gaming content based on the platforms they provide as well as interactive designs for various sectors such as architecture, military, health, education and media. An example of a game developed by the company is Abu Sree3 which is car-racing game set in the Arab region and which shows actual locations in Jordan and a few Arab countries such as Egypt, Saudi Arabia, Syria, and the UAE. Mixed Dimensions was a first place winner of the fourth round of Queen Rania National Entrepreneurship Competition (QRNEC) in the start-up category.

Sources: <http://www.zawya.com/story/ZAWYA20110918124322?q=mxid%20dimensions/> and <http://mixeddimensions.net>

²³ ibid

²⁴ ibid

Box3 (Continued)

Alnassah Software Solutions offers professional software solutions such as enterprise solutions, project analysis services, and school management systems. Most notable is their school management solution Althaki (الذكي) which is a comprehensive solution for class, employee, financial, schedule and library management. Alnassah is located in the Oasis500 investments and development park in Jordan.

Sources: <http://www.al-nassah.com>

Kharabeesh is a network for the production of animated cartoons, videos and talk shows in Arabic. Content is produced by a network of designers and illustrators and is mostly political and satirical in nature. Founders of the network were aware that Arabic content was lacking online. Kharabeesh is part of Think Arabia media group comprising five other companies. The business model adopted by Think Arabia is to have its companies outsource their services to sister companies; this is how Kharabeesh ensures its sustainability. The popularity of Kharabeesh, which employs around 40 people, considerably increased after the Arab spring and is valued at US\$7-8 million.

Sources: <http://www.moict.gov.jo/en-us/mediacenter/latestnews.aspx>
<http://kharabeesh.com/>, <http://en.wikipedia.org/wiki/Kharabeesh>, <http://www.abraaj.com/content/press-article-unrest-encourages-start-funding-middle-east>, <http://arabgrada.org/118-kharabeesh> and
<http://www.jordan-business.net/images/stories/May%202011/Kharabeesh.pdf>

* The survey results were announced by the Ministry of Information and Communications Technology in Jordan and are available at [http://www.moict.gov.jo/Portals/0/PDF/الدراسات والتقارير/Press Release_Sector Statistics 2011_English-Final 16092012.pdf](http://www.moict.gov.jo/Portals/0/PDF/الدراسات%20والتقارير/Press%20Release%20Sector%20Statistics%202011%20English-Final%2016092012.pdf)

Major mobile games developers worldwide are investing in the Arab region through game sales and localization activities. A survey carried out in 2009 showed that 58 to 60 per cent of mobile users in selected Arab countries download mobile content to their devices, out of which 16 to 38 per cent are games²⁵.

Only few member countries have setup programmes for dedicated research and development on DAC, tools, and applications. The Computer Research Institute (CRI) at KACST is heavily involved in the development of Arabic language processing tools, including automatic translation, voice recognition and optical character recognition. CRI has already released a number of products for translation and parsing and an interactive Arabic dictionary²⁶.

Social networks have had significant impact on marketing efforts. Product placement, advertising, and brand reputation management have all been shown to be highly impacted by social network messaging. Increasingly, successful organizations are including social media outreach activities to be a mainstreamed component of their overall marketing strategies²⁷. And in fact, digital social networks have spread considerably in the Arab countries in the last years. They become a daily communication tool in the GCC countries, while they have played a significant role in the social movements leading to the “Arab spring”²⁸.

The media sector, both in its traditional and technology-based forms, is facing many challenges that relate to the divide between the existing media governance systems and the continuously developing media-enabling tools and technologies, including social media and networking platforms. Challenges include the need to deploy significant efforts towards the convergence of television, Internet and telecommunications in

²⁵ ibid

²⁶ ibid

²⁷ ibid

²⁸ See Samir AITA: « Did the internet change the Arab Societies » and Navid Hassanpour: “A revolution in Egypt, with or without Twitter”; Le Monde Diplomatique Arabic editions, respectively January 2011 and February 2012, www.mondiploar.com.

general; the need to develop modern media legislations to promote freedom in information exchange; and directing resources towards strengthening professionalism in the media sector²⁹.

Satellite broadcasting, a booming market in the region, also contributes to the creation and distribution of DAC. The media industry is concentrated in Beirut, Cairo, Damascus, Doha and Dubai. Apart from making films and TV series, the market for Arabic subtitles and Arabic dubbing of Turkish and Mexican films and TV programmes is a new booming business. There are free media zones available within which the start of a television channel could be easily realized. The wider coverage of areas worldwide enables outreach to promote Arabic content, culture, news and values³⁰. Many of these stations have corresponding internet-based and mobile applications.

B. DAC MARKET SEGMENTATION AND STRUCTURE

ESCWA published in 2010 a study entitled "A Survey on Digital Arabic Content: software, applications, and needs assessment"³¹. The study gives an overview of the DAC industry in terms of existing tools and software for natural language processing and the production of content as well as available websites and e-services in various domains such as government, business, media, education, culture, and health. It also presents the framework for setting up incubators for the DAC industry and proposed projects for the establishment of SMEs working on DAC development.

The study noted the following observations with regard to Arabic content:

- The tremendous increase in the volume of Arabic content on the internet in the last five years;
- The absence of clear strategies for DAC development at the national, sub-regional and regional levels;
- The slow adoption of the fast developing technologies in content creation and production in the region;
- Shortages in skilled and experienced resources in the content industry;
- The high cost of high quality content development and the prevailing poor quality of present Arabic websites and portals;
- Lack of cooperation and collaboration in content development and processing at the regional level;
- The relatively raw nature of content and the lack of analytical and deep quality of extrapolation and forecasting;
- Total dependence on international companies in providing tools and solutions for handling the various aspects of the Arabic language instead of focussing on locally developed tools and solutions.

Figure (3) in Chapter I approximates the overlapping and converging landscapes of the media, creative, and digital content industries. The landscape not covered by digital content represents what can be considered as available potential market for digitization. The global percentage of digitization has not yet exceeded 30% and is expected to reach around 34% by 2015.³² A similar model applies to the DAC industry, but the present percentage of DAC available online, according to Connect Arab Summit 2012, is only 1.5% and is expected to reach 3% in 2015³³. It is believed that these percentages are gross underestimations.

²⁹ *ibid*

³⁰ *ibid*

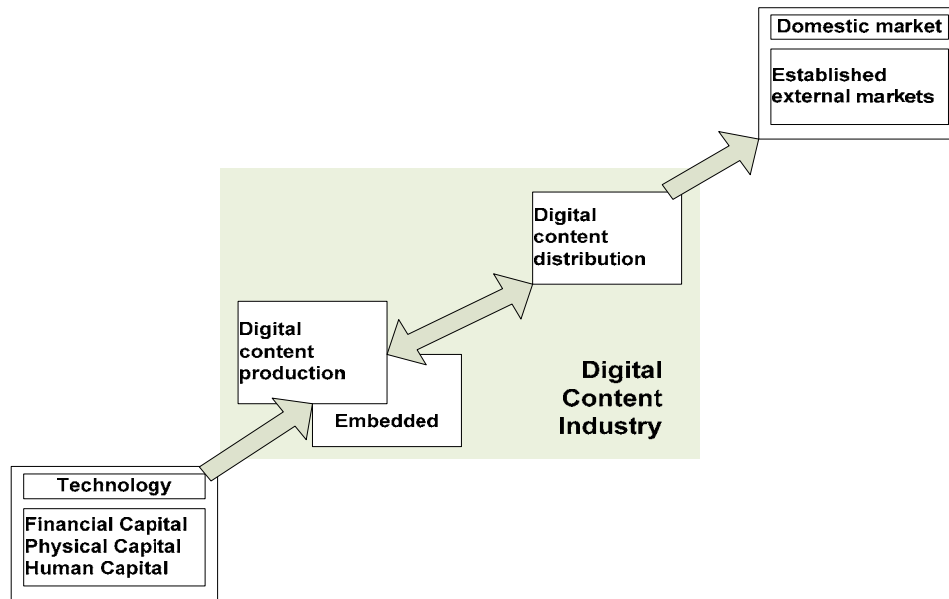
³¹ ESCWA. A Survey on Digital Arabic Content: software, applications, and needs assessment. March 2010 (Arabic). E/ESCWA/ICTD/2010/Technical Paper.1.

³² Price Waterhouse Coopers, Global Outlook of E&M 2011 – 2015 (August 2011).

³³ Connect Arab Summit 5-7 March 2012 Doha, Qatar.

The general process of producing DAC in the region is as shown in Figure (13).

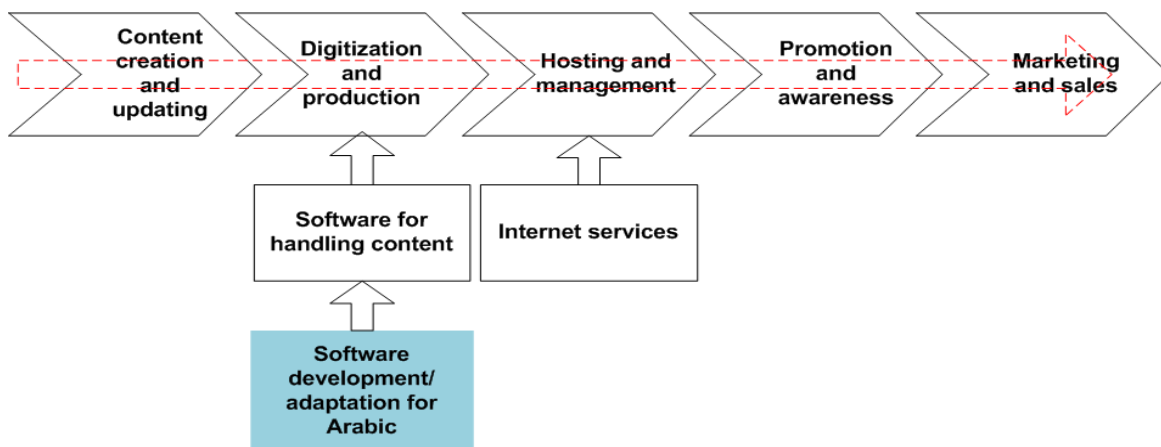
Figure (13). Flow of value in the digital content industry



Source: Centre for International Economics, Australian digital content industry futures, 11 May 2005, Canberra and Sydney

Figure (14) is a simple representation of the added value chain for content development which was suggested by ESCWA in 2005 as part of the report issued on DAC³⁴.

Figure (14). Value added chain for commercial DAC production



Source: ESCWA. Digital Arabic Content: Opportunities, priorities and directions. August 2005. E/ESCWA/ICTD/2005/4.

³⁴ E/ESCWA/ICTD/2005/4, Digital Arabic Content: Opportunities, priorities and directions, Aug. 2005

In the same report, DAC was categorized into three major categories³⁵:

- Media and entertainment;
- Business and trade;
- General services.

The three categories were then sub-categorized as shown in Table (5)³⁶.

Table (5). DAC sub-categorization

| Media and entertainment | Business and trade | General services |
|--|---------------------------|-------------------------|
| Films | B2B services | e-Government |
| TV production | B2C services | e-Learning |
| TV distribution | C2C services | e-Health |
| Music | | e-Inclusion |
| Radio and advertising | | e-Culture |
| Internet access and advertising | | |
| Economic publishing | | |
| Magazines publishing | | |
| Newspapers publishing | | |
| General books publishing | | |
| Text books and professional books publishing | | |
| Games and entertainment | | |

C. ESTIMATION OF THE SIZE OF THE DAC MARKET

Due to lack of regional estimates, the above mentioned study adapted the assimilated the region's figure to that of Latin America and estimated the regional market relative to GDP, which was 0.48 in 2002. As a result, the study calculated the Arabic content market to be just below \$15 B, out of which around \$9 B (60%) is available for digitization³⁷.

In this study, the Price Waterhouse Coopers, Global Outlook of E&M 2011 – 2015 is used to estimate the DAC market based on global models. This methodology is imprecise, but indicates to the reader another way to roughly estimate the DAC market.

Figure (15) represents the global figures in \$B used by the PWC study for 2011 and 2015 for the following markets³⁸:

- Entertainment and media;
- Internet;
- Advertising;
- Consumer/end-user.

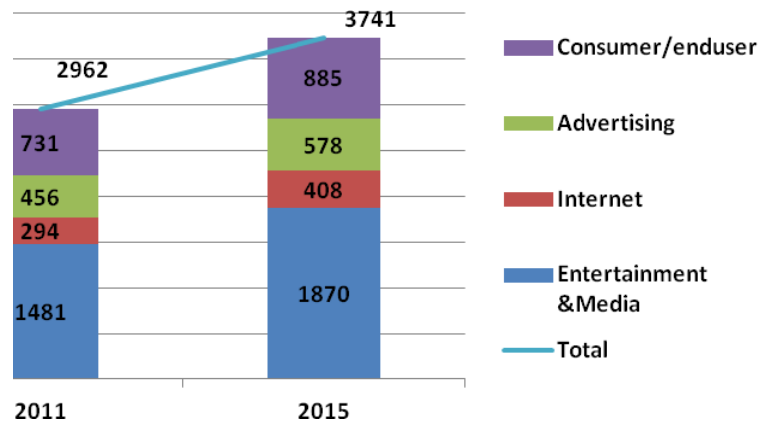
³⁵ ibid

³⁶ibid

³⁷ ibid

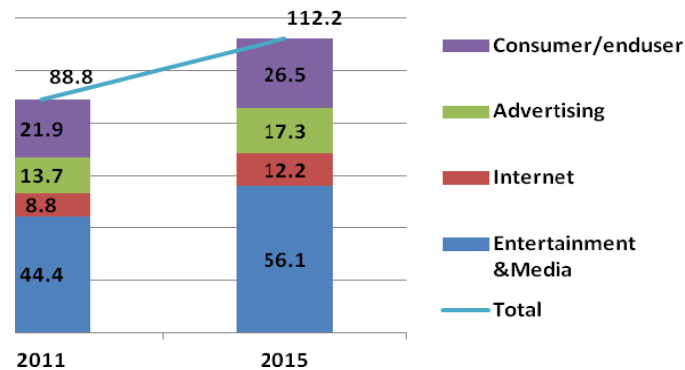
³⁸ Price Waterhouse Coopers, Global Outlook of E&M 2011 – 2015 (August 2011)

Figure (15). Market estimates in \$B of global content



The Arab region's market size is assumed to be roughly proportional to the percentage of available content which is generally held to be around 3% and this percentage is inspired from table (8)³⁹. Figure (16) represents the region's market for content.

Figure (16). Deducted market estimates for content in the Arab region in \$B



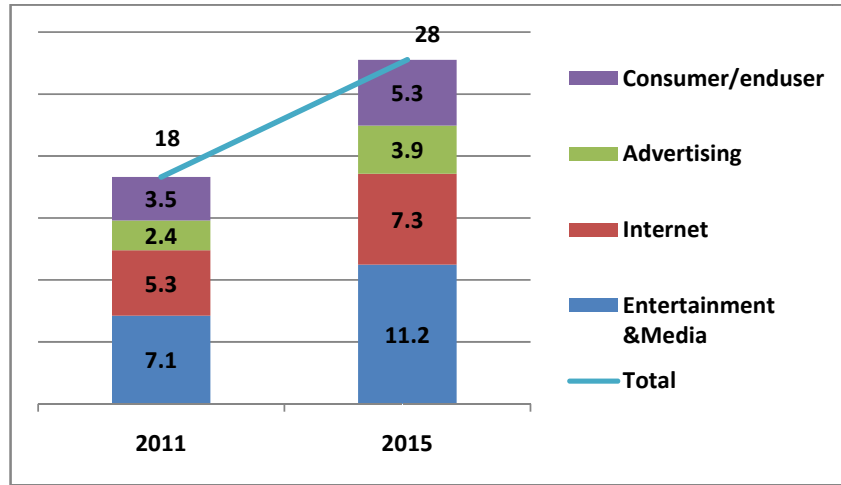
To calculate the percentage of Digital Arabic Content from the total estimated content for the Arab region, the following assumptions are made:

- The percentage of DAC from total content of the Arab region in both entertainment and media and consumer/end-user markets is 16% for 2011 and 20% for 2015;
- The percentage of Arabic content out of the total content used in the Arab region on the Internet is assumed to be 60%;
- The Arab region's portion is assumed to be 3% of the global market for internet advertising.

³⁹ Table (8) as the ration of Internet Arabic language users to the Internet total users of all languages.

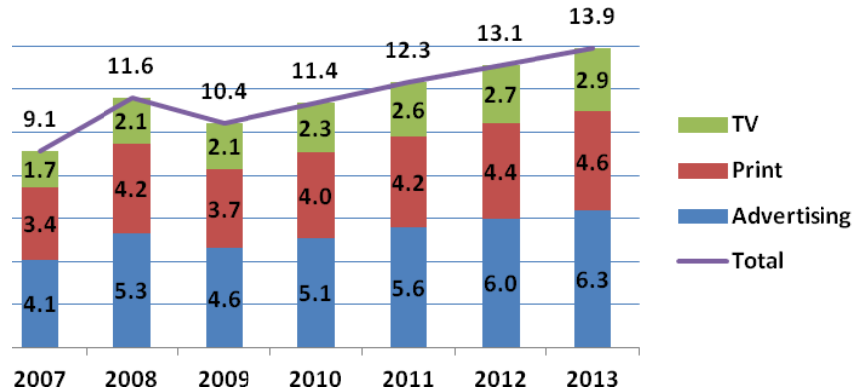
The resulting figures shown in Figure 17 represent the estimated DAC market values for 2011 to be \$18 B (20%), and the predicted value for 2015 to be \$28 B (25%).

Figure (17). Deducted market estimates for DAC in the Arab region in \$B



Another estimate for regional content can be also made based on the report “Arab Media Outlook 2009-2013” and are shown in Figure 18⁴⁰. The report does not attempt to provide percentages for digitization for the content categories given. However, if the percentage obtained from Figure (17) for 2011, which is 20%, is applied, then the digitized content for 2011 would be around \$2.5 B.

Figure (18). Estimated revenues from advertising, printing and TV in \$B 2007-2013



The DAC sector in the region presently consists of the following players:

- Government institutions or projects;
- Publishers and distributors of books and eBooks;

⁴⁰ Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts And Analysis Of Traditional And Digital Media In The Arab World, <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>.

- Newspaper and magazine publishers;
- Electronic only newspaper and magazine publishers;
- TV and films producers and distributors (dubbing and subtitles included);
- Information, translation, video and audio interactive portals;
- Web and mobile application designers dealing with content production;
- Education companies dealing with learning and development activities, including course authoring and learning systems;
- Games and entertainment;
- Social networks;
- Advertising.

Although the present DAC market is relatively well established, it has not resulted in a distinct DAC industry in the region. The great majority of creators of content are traditional media or creative industry operators. The production and distribution of content has not yet taken the structure and momentum of a sustainable industry. This is an astonishing fact, showing that there still strong impediments to the DAC industry in the Arab region. Further, it was demonstrated that these impediments are not linked to economic wealth: digital usage indicators in GCC countries are much lower than those of countries with similar high per capita GDP⁴¹ (companies' usage of internet in business, companies spending on R&D, etc.).

From the section on digital content status in the region, as in many region in the world, the following impediments are noted⁴²:

- Several content-related national initiatives have been launched in a number of countries in the region. However, there are no clear national or government DAC strategies in most countries in the region, and hence no clear legislative or financial support;
- Creativity and intellectual property are central assets which are not adequately protected in the region;
- Digital content relies heavily on broadband which is neither reliable nor affordable in practically all countries of the region;
- Susceptibility of digital content development to technology shifts due to frequent platform and format changes;
- Susceptibility of the national content market to influence by major players at the global and regional market levels;
- Public support is often necessary for local content creators;
- Identifying key talent is a challenge;
- The most necessary talents are creative skills, management and marketing;
- Increasing fragmentation of the small creators due to rapid advances in technology, while access to market can only be made through dominating major operators.

D. STATUS OF SUPPLY AND DEMAND

Market demand can be related to the content available in Arabic as part of the media and creative industry landscapes - Figure (3). All signs indicate that the present capture of digitized content is modest. A preliminary study was carried out by ITU Arab Regional Office in 2011, to analyze Online Digital Content in the Arab region using the available data from a number of international websites⁴³. The study showed that

⁴¹ See ESCWA 2011: "the Development of ICT sector to cope with the challenges of the information society".

⁴² Australian Interactive Media association, Digital Content Industry Road mapping Study, April 2005.

⁴³ ITU.int, Alexa.com, Google.com, HosterStats.com, Webhosting.info, Netcraft.com, icann.org, domaintools.com, ripe.net and isc.org.

the percentage of Arab countries representation in gTLD (global domain names, such as .com, .net or .org) sites is 0.162% and the number of Internet Hosts in the region is 0.198% of the international figure, and the percentage of Arabic ccTLD (country domain names, such as .com.eg) in the top 1 million sites is 0.187%. Most of the other studies attempting to measure this aspect of market size have examined the proportion of overall websites with content in Arabic, with estimates ranging from 1-3%. “A number of online content and portals exist in Arabic (e.g. Maktoob.com, Jeeran.com, and Nassej.com); however, their contribution to the overall available Arabic content on the Internet is rather small.” These percentages show that digital content in the Arab region is rather below what is expected of the region which has 5.142% of the population and 3.835% of the global GDP⁴⁴. Table (6) summarizes the results.

Table (6). Comparative Analysis of Digital Content to Selected Indicators (2010)

| Indicators | Arab Region | World Wide | Percentage |
|---|-------------|-------------|------------|
| Lard (Million Sq Km) | 13.14 | 136.4 | 9.63% |
| Mobile-cellular subscriptions (Millions) | 312.6 | 5,385.7 | 5.8% |
| Population (Millions) | 365.4 | 6,895.1 | 5.125% |
| Internet Users (Millions) | 86.2 | 2,044.2 | 4.218% |
| GDP (PPP; Trillion USD) | 2.86 | 74.5 | 3.835% |
| Household (Millions) | 64.58 | 1,751.6 | 3.687% |
| Fixed-telephone lines (Millions) | 35.51 | 1,189.3 | 2.986% |
| International Internet bandwidth (Mb/s) (Thousands) | 834.34 | 59,119.7 | 1.411% |
| IP counts (Millions) | 30.6 | 3463 | 0.884% |
| Internet hosts (Millions) | 1.52 | 764 | 0.198% |
| Number of cctld in the top 1 M sites | 1,871 | N/A | 0.187% |
| Internet Sites (in gtld) | 194,235 | 120,232,717 | 0.162% |

Sources: ITU.int, Alexa.com, Google.com, HosterStats.com, Webhosting.info, Netcraft.com, icann.org, domaintools.com, ripe.net and isc.org.

In the internet statistics published by Alexa for the top 500 websites, only 6 Arabic sites are listed, three of which are localized Google sites⁴⁵. See Table (7) which show that international players dominate the web market, and that the advertisement model of Google has been adapted to the local nature of the advertisement market.

Table (7). Arabic Websites according to Alexa Top 500

| # | Rank | Name |
|---|------|---------------------|
| 1 | 115 | Saudi Google |
| 2 | 150 | Egyptian Google |
| 3 | 340 | Koora |
| 4 | 383 | Maktoob |
| 5 | 402 | UAE Google |
| 6 | 498 | 7 th Day |

Arabic lies in position 7 in the top 10 languages used on the internet with a percentage of 18.8% of the Arab population, while scoring the highest percentage in growth (over 2500%) amongst languages between

⁴⁴ Connect Arab Summit 5-7 March 2012 Doha, Qatar.

⁴⁵ <http://www.alexa.com/topsites/global>

2000 and 2011. See Table (8).⁴⁶ This jump is considered as a clear incentive for future potential growth of the DAC industry.

Table (8). Top 10 Languages used in the Web

| Top Ten Languages Used in the Web (Number of Internet Users by Language) | | | | | |
|--|---------------------------|----------------------------------|--------------------------------|---------------------------|--|
| Top Ten Languages in the Internet | Internet User by Language | Internet Penetration by Language | Growth in Internet (2000-2011) | Internet Users % of Total | World Population for this Language (2011 Estimate) |
| English | 565,004,126 | 43.4% | 301.4% | 26.8% | 1,302,275,570 |
| Chinese | 509,965,013 | 37.2% | 1,478.7% | 24.2% | 1,372,226,042 |
| Spanish | 164,968,742 | 39.0% | 807.4% | 7.8% | 423,085,806 |
| Japanese | 99,182,000 | 78.4% | 110.7% | 4.7% | 126,475,664 |
| Portuguese | 82,586,600 | 32.5% | 990.1% | 3.9% | 253,947,594 |
| German | 75,422,674 | 79.5% | 174.1% | 3.6% | 94,842,656 |
| Arabic | 65,365,400 | 18.8% | 2,501.2% | 3.3% | 347,002,991 |
| French | 59,779,525 | 17.2% | 398.2% | 3.0% | 347,932,305 |
| Russian | 59,700,000 | 42.8% | 1,825.8% | 3.0% | 139,390,205 |
| Korean | 39,440,000 | 55.2% | 107.1% | 2.0% | 71,393,343 |
| Top 10 Languages | 1,615,957,333 | 36.4% | 421.2% | 82.2% | 4,442,056,069 |
| Rest of the Languages | 350,557,483 | 14.6% | 588.5% | 17.9% | 2,403,553,891 |
| WORLD TOTAL | 2,099,926,965 | 30.3% | 481.7% | 100.0% | 6,930,055,154 |

Notes: (1) Top Ten Languages Internet Stats were updated for May 31, 2011. (2) Internet Penetration is the ratio between the sum of internet users speaking a language and the total population estimate that speaks that specific language. (3) The most recent Internet usage information comes from data published by Nielsen Online, International Telecommunications Union, GfK and other reliable sources. (4) World population information comes from the U.S. Census Bureau. (5) For definitions and navigation help in several languages, see the Site Surfing Guide. (6) Stats may be cited, stating the source and establishing an active link back to Internet World Stats. Copyright 2012, Miriwatts Marketing Group. All rights reserved worldwide.

Example for interpretation of the data:

- There are 99,182,000 Japanese speaking people using the Internet, this represents 4.7% of all the Internet users in the world.
- Out of the estimated 126,475,664 population of the world that speaks Japanese, 78.4% use the Internet.
- The number of Japanese Speaking Internet Users has grown 110.7% in the last eleven years (2000-2011).

E. IDENTIFICATION OF GAPS

The impact of online media on traditional platforms has been undeniably dramatic on the global media industry. For example, printed press is suffering all over the world. The online industry in the Arab world, in many ways behind other markets, is starting to take off. The strong proportion of the youth demographic in the region is a major accelerating factor. However, from a supply point of view, the maturity level of the digital industry is inconsistent across the different Arab markets, and printed press is still strong all over the region. This is partly due to the differing broadband and mobile penetration, ranging from 84% in Qatar down to 0.3% in Sudan. The cost of telecommunications in the region is also high when compared with OECD countries. In particular, broadband prices could be 5 to 20 times higher⁴⁷. The overall broadband penetration for the Arab region is 12%, coming second from the last in the list of regions. See Figure (19).

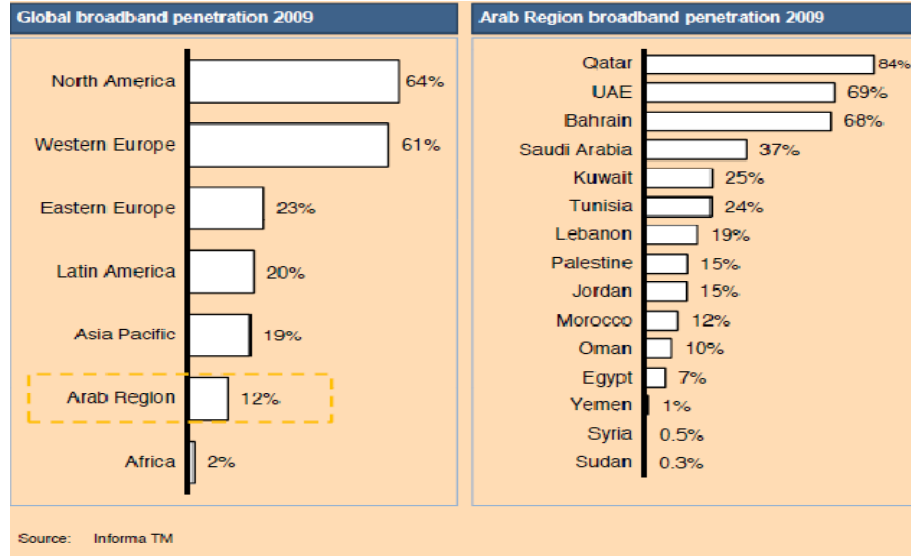
Broadband is the most important enabler for accessing and developing content. According to Arab Media Outlook 2009-2013, the estimate of broadband users in the Arab region for 2012 is 14 million with a combined annual growth rate of 38%, which calculates to about 29% penetration - note the difference in estimate with Arab Connect in Figure (14).

⁴⁶<http://www.internetworldstats.com/stats7.htm>

⁴⁷Connect Arab Summit 5-7 March 2012 Doha, Qatar.

While many companies seem to be experimenting with online platforms, the offerings of Arabic websites have room for further development. News sites receive around 2% of their revenue from online activities, suggesting that significant market growth in this segment is possible⁴⁸.

Figure (19). Broadband penetration



Also, the last three indicators in Table (6) show clearly the gap of digital access with respect to the rest of the world. Recent statistics indicate that there are about 100 million (27%) illiterates (60% of them are women) out of the total population of over 370 million⁴⁹. In addition, the region’s mindset and culture as well as the education systems have to undergo major transformation from memorization of outdated content and spoon feeding practises to innovation, creativity, teamwork and information sharing and searching.

As for access to the internet, it is estimated that 90 per cent of the population of the Arab region is fluent only in Arabic, and 60 per cent of Internet users in the region prefer Arabic as the language of Internet sites. Only 18.8 per cent of Arabic speakers worldwide use the Internet. This is a far smaller share than the 79.5 per cent of German language speakers, 78.4 per cent of Japanese speakers and 55.2 per cent of Korean speakers who are Internet users.

Wikipedia statistics show that in February 2013, there were over 211,000 articles available in Arabic on the Internet, ranking the Arabic Wikipedia 24th, among other Wikipedia editions, on the basis of article count⁵⁰.

The online advertising market in the Arab world is yet to take off in a significant way. The present status is roughly comparable to what was seen in markets like the UK around the year 2000. At present, the Arab region spends approximately \$56 million on online advertising, which represents approximately of the total expenditures. This proportion is expected to grow to approximately \$266 million over the next few years.

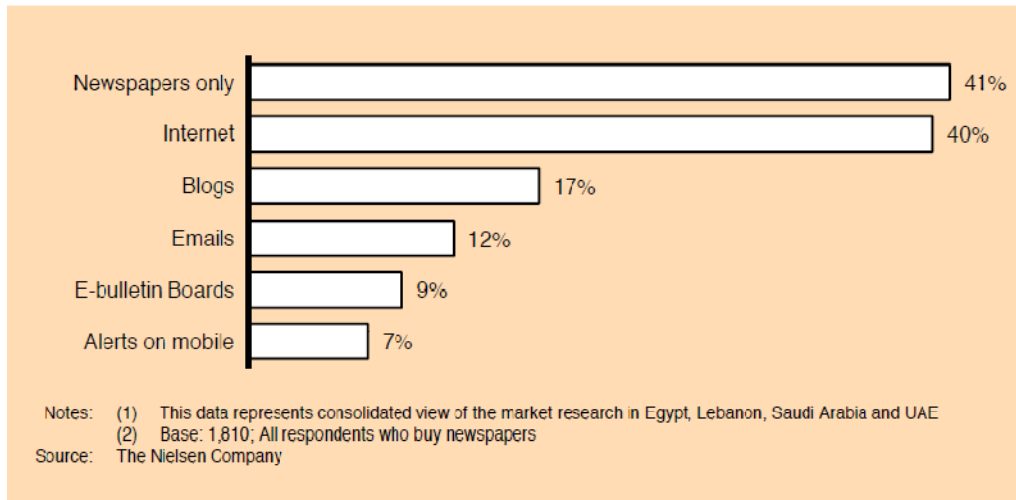
⁴⁸ Connect Arab Summit 5-7 March 2012 Doha, Qatar.

⁴⁹ http://en.wikipedia.org/wiki/List_of_countries_by_literacy_rate

⁵⁰ http://meta.wikimedia.org/wiki/List_of_Wikipedias#10_000.2B_articles.

However, compared to traditional platforms, its share is a small portion of the advertising revenues, estimated to reach only 4% in 2013. There are several reasons for this low representation: first, broadband penetration will remain low when compared to Western markets; second, although Arabic websites are the most popular in practically all Arab countries, neither quality nor quantity of online content are yet comparable to that seen in developed English sites. Search is not yet fully developed, mainly due to lack of appreciation for its value among local companies⁵¹. Figure (20) shows the various platforms used for news in the region.

Figure (20). Sources for reading news in the Arab Region



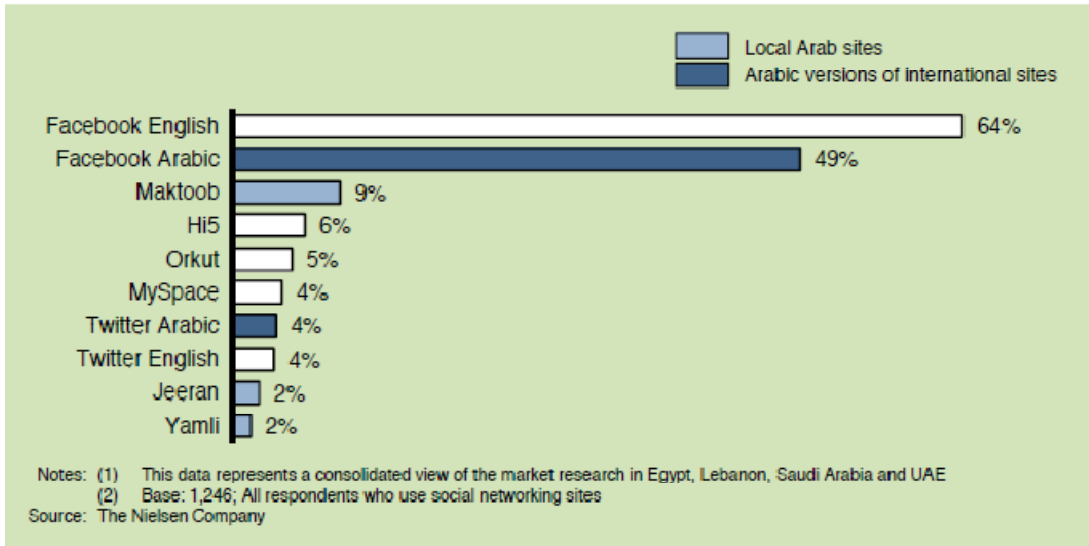
Social media in the Arab world is currently undergoing significant developments. There are three key categories of social media sites in the region, co-existing in the market: first, international sites such as Facebook have managed to gain the largest popularity, due to strong brand names and their early entry into the market; second, international players such as Twitter have recently introduced an Arabic interface which is expected to grow in popularity over the next five years as internet penetration in the bigger Arabic-speaking markets, such as Egypt and Saudi Arabia, increases and awareness grows; third, local companies such as Maktoob, Jeeran and UAE Women’s Network are growing their user bases despite strong competition from international players. Companies offering additional services to pure social media, like Maktoob, are performing particularly well and have the potential for significant growth⁵². See Figure (21) on percentages of access for social media in the Arab region⁵³.

⁵¹ Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts And Analysis Of Traditional And Digital Media In The Arab World, <http://www.dpc.org.ae/UserFiles/AMO%20Eng%20combined.pdf>

⁵² ibid

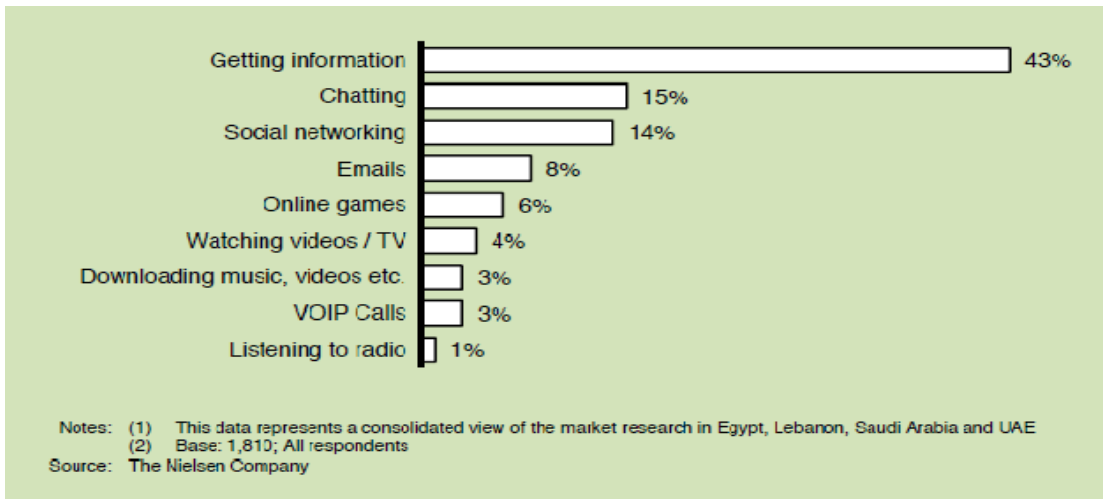
⁵³ ibid

Figure (21). Accessing social media in the Arab region



With mobile penetration already very high, the region is expected to reach universal mobile penetration by 2013. As mobile penetration increases, the handset is becoming an increasingly significant platform for content consumption, and an increasing number of collaborative partnerships between telecom operators and media content providers are being forged⁵⁴. There are about 250 million mobile units in the region. Undoubtedly, digital content is also affecting traditional media (TV, Newspaper, Books, Radio, and Cinema). Figure (22) shows the most common activities on the internet in the Arab region⁵⁵.

Figure (22). Most common activities on the internet in the Arab region

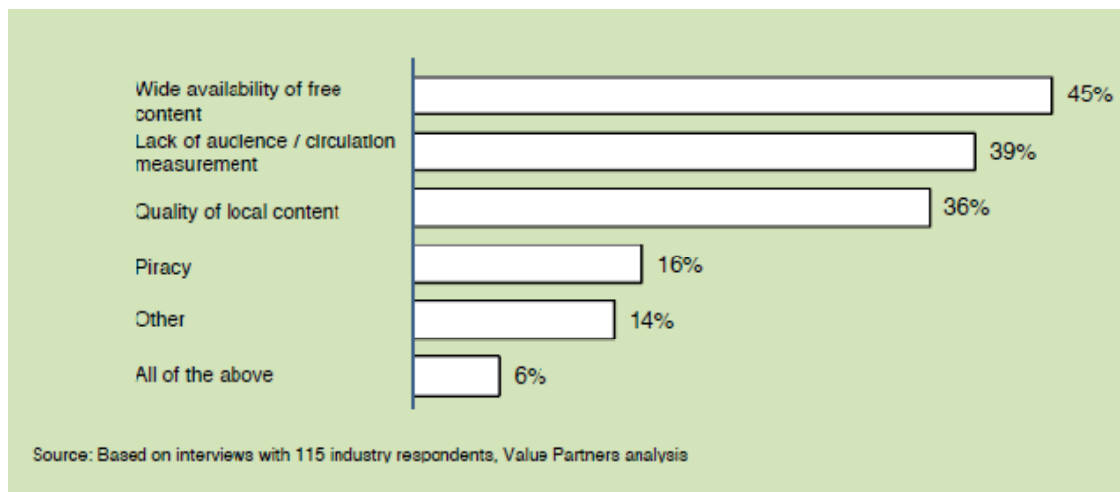


⁵⁴ ibid

⁵⁵ Arab Media Outlook 2009-2013: Inspiring Local Content: Forecasts And Analysis Of Traditional And Digital Media In The Arab World.

One of the key issues for DAC is monetisation. A survey carried out by Arab Media Outlook based on interviews with 115 industry respondents showed the factors that were considered essential to address when considering a business model for monetisation. See Figure (23).

Figure (23). Key issues for monetisation in the Arab region



F. DAC AND THE ICT SECTOR

In 2011, ESCWA published a study entitled “Promoting the ICT Sector to Meet the Challenges of the Knowledge Economy”⁵⁶. This study analyzes the ICT sector in the region, including the current status, as well as obstacles and challenges for further development. As part of this analysis, the role of governments in promoting the sector was examined. In addition, the study identified specific actions which could be taken to promote growth in the ICT sector and in the broader socio-economic development context.

Many of the challenges and impediments discussed in the study also apply to DAC, being a subsector of the overarching ICT sector. They included, amongst others, improving the regulatory and legislative environment for ICT, the application of intellectual property laws and regulations and prevention of piracy, the introduction of e-commerce and e-signature laws, the application of data security and privacy tools, and the prevention of cyber crime. The study also stressed the importance of upgrading the present ICT infrastructure to cope with broadband demand and provide enhanced bandwidth to link countries regionally and globally.

On the issue of promoting ICT as part of the business sector, the study proposed partnerships amongst stakeholders at national, regional and global levels and introduces incentives for investment in small and medium size projects. This, in turn, will lead to the creation of small and medium size enterprises which should also be provided with funding sources to ensure their success.

Finally, the study highlighted two major issues to be urgently handled by national strategies and policies in the Arab countries which are relevant to DAC:

- The first concerns the inherent limitations of the scheme of ICT development based on high mobile phone penetration (mostly based on low revenue prepaid lines) with low fixed lines penetrations;

⁵⁶<http://css.escwa.org.lb/ICTD/1433/10a.pdf>

Such a scheme is not likely to adequately respond to the demands of growth and development of broad band, as revenues would not allow for return on investment on the base infrastructure;

- The second concerns the freedom of publishing and opinion, especially for the case of radios and TV stations, as well as for social networks. Additionally, the low development of fixed infrastructure limits the development of local TV stations.

III. DAC ECOSYSTEM/ ENABLING ENVIRONMENT

A. SOURCES OF INVESTMENTS

The digital content industry is experiencing significant difficulties in attracting development funding, venture capital, project financing and enterprise investment. These difficulties exist in both low and high income countries due to the relatively low return on investments compared with other business sectors. Business models⁵⁷ based on advertisement encounter difficulties due to the concentration of advertisement market and to the still low level of advertisement spending on new media. Business models based on subscription have to overcome the low level of average citizen revenues and low bancarization⁵⁸.

Mechanisms to support the critical phase of prototyping and proof-of-concept development appear to be a particular gap. Incubation schemes in a number of countries in the region have helped start-up groups develop prototypes or launch pilot projects, but the impact of these initiatives have so far been limited in triggering the creation of a sustainable industry.

To overcome this, efforts by governments, in partnership with stakeholders, are needed. One way to accomplish this is through the launching of an Investment Scoping Forum, to bring together industry bodies and firms with investors and other major investment groups to examine the situation collaboratively and recommend ways of removing impediments, stimulating growth and encouraging investment in the DAC sector.

In considering sources of investment for DAC, regional funding mechanisms and foreign direct investment and business partnerships with foreign companies are sources which have the potential to provide, not only capital, but also technical and business skills, technology transfer, access to larger projects and external markets. However, care should be taken when managing this potential to avoid monopolistic concentration.

B. GOVERNMENT ROLES AND POLICY

The government should therefore be a major prime mover in the initial phase of creating DAC industry in the region. It has to address and take action on the following issues⁵⁹:

- Giving priority to local innovation and technology (e.g. enhancing R&D and innovation in content development, networks, software and new technologies);
- Enhancing the value chain and tackling business model issues (e.g. developing a competitive, non-discriminatory business environment);
- Substantially enhancing substantially the infrastructure, especially the basic fixed-line infrastructure, wiring residential areas and promoting broadband (e.g. technology for digital content delivery, standards and interoperability);

⁵⁷ Samir AITA: The DAC industry, business models. Presentation, Beirut April 28-28, 2008.

⁵⁸Bancarization is the level of access to, and the degree of formal financial services generally (and banking services particularly).

⁵⁹DSTI/ICCP/IE(2005)3/FINAL, OECD, Working Party on the Information Economy - DIGITAL BROADBAND CONTENT - Digital content strategies and policies.

- Enhancing business and regulatory environments that balance the interests of suppliers and users, in areas such as protection of intellectual property rights and digital rights management, anti-trust mechanisms, giving advantage to local, innovative e-business models;
- Promoting quality assurance through setting up standards for production and access of DAC;
- Respecting intellectual property rights and ensuring adherence to copyright law and anti-piracy regulations, while avoiding creation of monopolies;
- Facilitating and encouraging the establishment of funds and venture capital mechanisms to support start-ups and SME's;
- Encouraging universities and training institutes in introducing courses in topics related to digital content with particular emphasis on DAC and initiate scholarships and funding programmes for this purpose;
- Integrating and coordinating at the regional level;
- Fostering the role of governments as major users of digital content (e.g. digitization of public services, etc), giving advantage to local developers and service providers; and
- Enhancing conceptualisation, classification and measurement issues for the DAC industry and services.

Box (4). The Northern Ireland Digital Content Strategy 2012-2015*

The Northern Ireland Digital Content Strategy 2012-2015 builds upon the previous strategy for 2008-2011 and comes within the context of realizing that digital content offers a real growth opportunity for Ireland; however, this sector is in need of substantial development in order to realize this opportunity.

The strategy describes Northern Ireland policy context through the 'Northern Ireland Executive's European Priorities' document which acknowledges the significance of the 2010 European Union (EU) Green Paper 'Unlocking the potential of cultural and creative industries'. The Executive sets out a number of key aims to help properly position Northern Ireland with regard to the European policy developments in the digital content context. These key aims are:

- Promote greater private sector R&D investment;
- Encourage entrepreneurship, creativity and innovation;
- Promote science, technology, engineering and mathematics (STEM) and educational and creative industries that encourage young people to study STEM subjects;
- Promote translational research, knowledge transfer/exchange and STEM between firms and between the research base and firms;
- Promote cross-sectoral collaborations between the creative and cultural industries and with other business and research sectors to stimulate innovation, job creation and expert-focused growth;
- Nurture the development and exploitation of new technologies, ideas and ways of working in companies, universities, the research base and elsewhere in the public sector;
- Make fuller use of information and communication technologies;
- Promote deployment and use of modern accessible online services;
- Leverage significant public investment in the health sector, including in skilled employees and clinical trials infrastructure, to realize economic outcomes.

A number of objectives are set to address these aims, among which:

- Stimulate growth of the creative industries by nurturing creative talent and creative enterprises and by encouraging innovative cross-sectoral collaborations;
- Harness the potential of the creative and cultural industries to support export-focused economic growth, job-creation and positive spill over impacts into areas such as health, education and social cohesion.

The Economic Strategy consultation document published by the Northern Ireland Executive in November 2011, realized the potential held by Creative Industries for developing the Northern Ireland economy, and as a result sets a target of support for 200 projects through the Creative Industries Innovation fund by 2015. Digital currently accounts for just over 25% of total industry revenues; and over the next five years this figure is expected to rise to 58.7%.

The Northern Ireland Digital Content Strategy 2012-2015 provides an overview of the market and identifies the following key themes for development: leadership and communications; investment and funding; innovation and creativity; skills and training; and export and internationalization. The strategy also includes a roadmap defining practical implementation, targets and timelines.

*Source: "The Northern Ireland Digital Content Strategy 2012-2015" available at http://quayperformance.com/DC/Digital_Circle_Strategy_2012_-_2015.pdf

Governments have a role in developing "enabling factors" for the creation and use of digital content. They can act as facilitators, remove impediments to investment and create an appropriate "pro-digital" content business environment by addressing market enablers such as R&D, innovation, access to capital, education and the development of skills. The creation of non-discriminatory framework conditions aims to reduce the barriers to entry, improve competitiveness, especially for small players. A competitive market for content and telecommunication services is key to broadband adoption, along with content diffusion and use. New content types created by network users should also receive government attention.

The government has a major role as a provider and user of digital content and applications. On the production side, it includes public sector information, which can be commercially re-used, and public sector educational, cultural (museums, archives), and other content where there are public good and spill over arguments to support a major government role. Governments can also participate or support the development and access to specific content (*e.g.* of digital archives of public broadcasters). On the consumption side, governments can promote demand through public demand aggregation and private demand promotion, with significant opportunities in areas such as e-health and online education. Mobile applications can also be implemented in the public sector, such as school access to student information, access to public safety information, etc. These measures for access and sharing can also improve public sector efficiency.

Many governments have developed focus on digital content related creative content industries, either with overarching digital content policy frameworks, or with programs specific to certain digital content industries. Appendix II presents available information of OECD government initiatives and strategies for the digital content industry.

Governments have to balance different objectives inherent in these strategies: *e.g.*, encouraging widespread information/content access and dissemination, diversity and quality, promotion of information technology in business and society, information literacy, combating trusts, protection of intellectual property rights, information security and privacy and the reduction of harmful content⁶⁰.

Governments have also the responsibility to promote R&D projects and encouraging partnerships between creators and producers of content.

⁶⁰ibid

C. EDUCATION AND TRAINING

Digital content development is a high-tech, high-skill industry. One major characteristic of the ICT industry, and thus DAC industries and services, is the ever changing technologies, and the expanding gap which builds up between the different generations in using and accommodating technologies. Thus digital culture should be introduced in education at an early age, and core scientific education subjects (maths, physics, programming, etc) should be enhanced in all stages of education in order to enable the new generations to easily adapt to ever changing technologies.

Furthermore, specialized universities and technical institutes should be developed in order to graduate highly skilled engineers and technicians in ICT, trained on using the most advanced technologies in line with international practices. These courses should focus on creativity and business development.

However, skills related to digital content are not obtained from formal degree courses at universities or tertiary institutions. This is in part due to the rapid changes in technical fields compared with very long lead-times required to change formal tertiary courses. Many skills are hence not acquired in formal education but usually on the job or in firm or sector-specific training programmes. Smaller firms may find extensive in-house training too costly if it covers a wide range of specialist skills. To tackle skills shortages OECD governments have aimed at developing more formal education and training programmes for digital content - both at the tertiary as well as at earlier educational levels. A study for the Irish government also recommends the development of digital media management courses, and creative components at the primary and secondary educational level and in the computer science programmes⁶¹. In Spain the Enterprise Digitalization Programme of Catalonia promotes education and training for digital content and supports ICT and content related R&D specific to SMEs⁶².

D. PARTNERSHIP AND COLLABORATION ISSUES

It is evident that despite ongoing efforts to develop digital Arabic content, there is tremendous room for growth. Greater national and regional coordination could improve the situation.

There are few encouraging exceptions:

- Mohammed bin Rashid Al Maktoum project to digitize Al Azhar manuscripts;
- The partnership between KACST and the Beirut based Arab Organization for Translation to make a number of digitized books on science heritage which available to download free of charge;
- The work of the World Digital Library initiated by the library of Congress and Bibliotheca Alexandrina is another example;
- Also, Qatar Foundation in collaboration with Carnegie Mellon University began a pilot project to digitize the Qatar Heritage Book Collection and make it available to the world. Arab and Islamic Heritage Library is a cultural landmark in Qatar. The rare collections of the Library exhibits the depth and wealth of the Arab and Islamic civilizations, and demonstrate the extensive contribution of Arab and Muslim scientists, thinkers and pioneers to the global intellectual heritage. It has 2 main sections: The Arabic Section: which contains about 85000 items which includes manuscripts, books,

⁶¹The Northern Ireland Digital Content Strategy 2012-2015

http://quayperformance.com/DC/Digital_Circle_Strategy_2012_-_2015.pdf

⁶²DSTI/ICCP/IE(2005)3/FINAL, OECD, Working Party on the Information Economy - DIGITAL BROADBAND CONTENT - Digital content strategies and policies

magazines and newspapers in different fields of research and arts, some dating to the fifteenth century till the Mid-twentieth century. The Foreign Section: which contains about 25000 items which includes books, periodicals and maps reflect on the whole interest of the Orient lists and European travelers and explorers of the Arab and Islamic heritage, some dating to the Mid-fifteenth century⁶³;

- ESCWA project on “Promotion of the Digital Arabic Content Industry through Incubation” was launched in 2007 and funded by ESCWA’s Trust Fund. It focused on implementing a number of DAC related projects through incubation facilities in Jordan, Lebanon, Palestine, Syria and Yemen. For the selection process, ESCWA organized a series of national awareness campaigns in collaboration with selected established national incubators and universities in the selected countries.

However, most of these collaborative initiatives lack the creation of a market demand for DAC industries and services, and remain in an isolated environment. In particular, the archives and historical books digitization could create market demand if they put their products in the public domain.

The digital content industry is ideally suited for partnership and collaboration between content creators, producers and distributors. Governments should play a proactive and a match making role in the DAC industry. Governments are not just enablers, but also as major users of DAC and have the responsibility of preserving the Arabic language heritage as an essential core of regional memory and culture. Government should also consider the setting up of national or regional fund for supporting partnership projects in DAC.

⁶³<http://www.qatarnationallibrary.org/collections/aihl/history>

IV. CONCLUSIONS AND RECOMMENDATION

A. TRENDS& PRIORITIES

In its prediction for 2012 and beyond, International Data Corporation (IDC) highlighted a number of trend lines for 2012 – 2020 which have to be taken into consideration when formulating a national or regional DAC strategy⁶⁴:

Trend (1) - Mobile devices are eclipsing PCs. Mobile computing; particularly tablets and smart phones are gaining significant market share. If present trends continue, PCs will become less relevant to the digital content industry as consumer interest and content development shifts elsewhere. Governments in the Arab region should create the proper infrastructure supporting broadband apps on mobile devices.

Trend(2) -Increasing popularity of cloud platforms, as cloud-based products, services and infrastructure mature, more applications and solutions will take advantage of these types of systems. Particularly at the enterprise level of software services, these products are showing strong market growth.

Trend (3) - Social technologies will be mandatory. The rapid growth of social media tools in the Arab region emphasizes the popularity and relevance of these tools. As adoption continues to grow, it is likely that businesses in the Arab region will pursue commercialization of these tools, as have businesses in other regions.

Arabic in the region is more than a language. It defines the heritage and culture of more than 370 million people worldwide. It is one of the few languages in the world that has preserved its grammar and structure for over 14 centuries. Literature, science and theology books which were written centuries ago can be read, understood and referenced today. This means that one of the priority areas for DAC strategy should be devoted to the preservation of language and heritage, and to the promotion of Arabic as a living language, avoiding creating a gap between heritage and culture in Arabic and business and education in other languages, such as English.

The key sub-sectors in DAC that have to be included in the formulation of a strategy are: (a) Heritage and language preservation; (b) automatic translation and associated computational linguistic tools; (c) mobile applications; (d) E-learning and course authoring content; (e) Web design and development; (f) Films and television; (g) Music; (h) e-Services for users and citizens and (i) games.

In this, key themes need to be addressed through targeted initiatives so as to realise the potential for growth of the digital content industry are⁶⁵:

- **Leadership and Communications:** it should include the government, major industry players and academia;
- **Investment and Funding:** potential investors should be identified and should become aware of DAC market potentials. A forum should be established consisting of investors, content creators and producers to forge partnerships and joint projects. A funding mechanism and venture capital for DAC projects should be established;

⁶⁴<http://www.idc.com>

⁶⁵Digital Circle, the Northern Ireland Digital Content Strategy 2012-2015.

- **Innovation and Creativity:** encouragement of students and entrepreneurs through incubation and start-up funds;
- **Skills and Training:** encourage universities and training institutes to design courses for content development;
- **Regionalization and outreach:** going beyond national borders to address the region and the Arabic speaking diasporas in other parts of the world.

B. CONCLUSIONS

The social and political transformation which has been taking place in a number of countries in the ESCWA/Arab region has created a quantum leap in production and access of Arabic content through social networks and other media applications, such as personal reporting and uploading of text and videos. Therefore, it was not surprising to find the Arabic language users in seventh position in the list of top 10 languages of internet users by language for 2011 with about 3.3% share out of the total user population. See Table (7). Few years back, the share of Arabic was considerably less than 1%.

According to the data referenced in this report on language preferences in the region; Arabic is the first choice at the regional level for practically all applications including newspapers and TV programmes. The data is also clear that that in the majority of consumers in the region prefer content in local languages.

The global content market for 2011 was estimated by a Price Waterhouse Coopers to be just below \$3000 B and is predicted to increase to \$3800 B in 2015. The ESCWA/ Arab region's portion of the content market is estimated to be \$88.8 B and for 2011 and \$112.2 B for 2015. And, if the assumptions made in this study are plausible, then the expected portion of DAC, out of total content for the region, is \$18 B in 2011 and \$26 B in 2015.

The monetisation of content and the different business models suitable for different content segments is not discussed in this report and will be addressed in separate ESCWA study. However, a look at Figure (23) shows the key issues facing monetisation, as 45% of those surveyed expect that free content is widely available.

The digital content industry has experienced significant growth in the last few years, much more than many other business sectors. During this time, several different business models have emerged. Some are based on subscriptions; others are based on advertisements; some are contractual to consumers and businesses. It is believed that the development and flourishing of a digital content market depends on broadband connectivity and its affordability, in addition to the creation of quality and popular content.

Although the region is following global trends in content growth, one can easily spot gaps in segments of digital content such as e-Books and e-Learning which have not picked up as quickly as expected. The centuries-old legacy of the Arabic language provides excellent opportunities for digitization.

Digital advertising is also identified as a key issue for the growth of DAC in the region. According to Arab Content 2012 only 2% of total advertising is in digital form. This means that one of the major sources of revenues for typical business models is very weak in the region.

The end user/consumer segment of content is also expected to increase due to the growth of interest in social networks for political and social reasons. In the last two years, this trend has accelerated in the region.

General examination of DAC landscape reveals then the following points:

- **Market potential:** The present percentage of digitised Arabic content has witnessed a substantial growth in recent years but remains relatively modest. This should translate to a promising market potential for digitization;
- **Language preferences:** 90% of the region’s population prefer to access content in Arabic. Many surveys, particularly those which were carried out by Arab Media Outlook showed an overwhelming preference for reading newspapers, books and advertising in Arabic;
- **Better infrastructure:** Closing the digital divide for countries in the region should be a target which can only be achieved through larger penetration of affordable Internet connectivity, including broadband;
- **Initiatives:** There is a lack of national and regional initiatives at government, telecom operators, content creators and producer’s levels. Efforts, at present, are ad hoc and sporadic. The common market approach is not yet developed;
- **Mindset issues:** The need to change the mindset of investors, regulators and government officials to be more involved in DAC development and promotion;
- **Coordination:** The multidisciplinary involvement of the eco-system of digital content and its interrelationship to ministries of telecommunication, culture, education, health, government administration, and others⁶⁶;
- **Skills requirements:** Lack of high-tech, high-skill base which is required for the development of a digital content industry in the region. The skills required for knowledge economies are not just limited to high-tech, but also include areas such as management, entrepreneurship and innovation⁶⁷;
- **Availability of training and education:** Even if ICT and other related skills needed for the digital content industries are not obtained from formal degree courses via universities or tertiary institutions, but usually on the job or training program⁶⁸, there is a major need in the region for specialized universities in advanced ICT technologies;
- **Availability of skills on the side of users:** Education and skills are also needed on the side of the user. The education system which would be a good source of basic digital competence to equip the younger generations facing serious challenges in the Arab region⁶⁹;
- **Basic literacy:** Although the region’s demographic consists of a large percentage of youth who are enthusiastic about new technologies, there are over 100 million illiterates in the region constituting about 27% of the total population that require special attention when formulating a ubiquitous DAC strategy at national and regional levels.

C. RECOMMENDATIONS

It is evident that the potential for a digital content industry in the region is real. A gap between what can be done and what is available should provide incentives to governments and the private sector to promote growth and development of digital content industries and services in the region. The Arabic language should be an effective platform for the region which justifies collaboration and an open market

⁶⁶Connect Arab Summit 5-7 March 2012 Doha, Qatar

⁶⁷ibid

⁶⁸ibid

⁶⁹ibid

approach⁷⁰. The Arabic language should have been a strong driver for the DAC industry, as it naturally facilitates a regional market for local companies. However, the tendency in some countries, especially in the GCC countries, to use other languages, even in official businesses and education has had its adverse effects on adoption. Therefore, the setting up of a robust and sustainable content industry in countries of the region needs to take the following points into consideration:

- The development of *policies and strategies* for DAC development at sectoral, national and regional levels;
- The absolute necessity to improve the penetration and affordability of broadband, particularly in less privileged areas, and ensure that all schools have broadband access at all levels;
- The establishment of national and regional foundations for the DAC industry. These foundations should include mechanisms for financing projects and provide advice on partnerships, future directions and trends for the DAC industry. It should monitor and benchmark progress through the suggested indicators listed in Appendix III, and advise on issues relating to the enhancement and promotion of digital content;
- Support and fund research and development in computational linguistics with regional and global partnerships to produce tools and software for automatic translation and semantic analysis to ease the process of producing grammatically correct text for translated content and to improve the learning process of the Arabic language amongst the young generation in the region and beyond;
- Invest in a regional partnership to develop automated tools for optical character recognition (OCR) for Arabic that should provide users with reliable, robust and fast tools for applications such as converting paper content into digital form, automatic translation and voice recognition. Support of governments and private sector investors for research institutions and universities through grants for development of hardware/ software solutions for handling Arabic content is considered essential;
- Encourage the establishment of content industries for e-Books and e-Learning in the Arabic language;
- Focus on building capacity in education systems which should start with skills development for teachers and school masters. Development of teaching resources must be directed at utilizing open standards, so that market mechanisms for the development of teaching aids are enabled at the regional level. High level training for handling sophisticated content is also necessary to ensure the availability of skilled resources to handle DAC's special requirements;
- Participate, in collaboration with countries in the region, in the launching of regional DAC awards for individuals, the business sector and government institutions, similar to what was started by ESCWA in 2007. Award programmes are essential incentives for young entrepreneurs and university students to compete with ideas and inventions and will provide incubators and investors with projects which they can host as start-ups for possible launching of new products and services in the DAC industry;
- Encourage local/regional universities to partner with the industry, incubators and professional associations in designing academic and professional courses in digital content development and processing with particular emphasis on Arabic. Universities should also be encouraged to initiate joint research projects on digital content processing and computational linguistics topics;
- Launch an awareness campaign through media, directed at schools and the young, on the beauty and wealth of the Arabic language, its heritage and culture, and the importance of preserving it through the process of digitization;
- Governments should consider the establishment of funds and encourage the banking sector in introducing venture capital support for start-ups and the creation of SME in DAC industry sector.

⁷⁰ *ibid*

APPENDICES

APPENDIX (I)

LIST OF ESCWA REPORTS AND PUBLICATIONS ON DAC

| # | Date | Reference | Title in English | Title in Arabic | Language |
|----|---------------|---|---|---|----------|
| 1 | 19 June 2003 | E/ESCWA/ICTD/2003/WG/2/21 | Expert Group Meeting on DAC Consolidation | اجتماع خبراء حول تعزيز المحتوى الرقمي العربي | A |
| 2 | 23 April 2003 | E/ESCWA/ICTD/2003/3 | Enhancing and improving Arabic content on digital networks | تعزيز وتحسين المحتوى العربي في الشبكات الرقمية | A |
| 3 | 3 Oct. 2003 | E/ESCWA/ICTD/2003/10 | Arab Content Initiative | مبادرة المحتوى العربية | A |
| 4 | 29 Aug. 2005 | E/ESCWA/ICTD/2005/4 | Digital Arabic Content: Opportunities, priorities and directions | المحتوى الرقمي العربي: الفرص والأولويات والتوجهات | A |
| 5 | 31 Oct. 2005 | E/ESCWA/ICTD/2005/7 | ICT Bulletin No. 4 | نشرة تكنولوجيا المعلومات والاتصالات (٤) | A |
| 6 | 29 June 2007 | E/ESCWA/ICTD/2007/7 | Virtual Workshop on Enhancing DAC Industries | ورشة عمل افتراضية حول تعزيز صناعة المحتوى الرقمي العربي | A |
| 7 | Dec. 2009 | http://css.escwa.org.lb/ICTD/1107/1-2.pdf | Promotion of the Digital Arabic Content Industry through Incubation | الترويج لصناعة المحتوى الرقمي العربي من خلال الحاضنات التكنولوجية | E |
| 8 | 22 March 2010 | E/ESCWA/ICTD/2010/Technical Paper.1 | A Survey on Digital Arabic Content: software, applications, and needs assessment | مسح للمحتوى الرقمي العربي: برمجياته وتطبيقاته وتقييم احتياجاته | A |
| 9 | 22 March 2010 | E/ESCWA/ICTD/2010/Technical Paper.2 | Models for Business Plan, Marketing and Multi-stakeholder Partnerships for the DAC industry | نماذج لبرامج الأعمال وخطط التسويق والشراكات لصناعة المحتوى الرقمي العربي | A |
| 10 | 22 March 2010 | E/ESCWA/ICTD/2010/Technical Paper.3 | Development Of Digital Arabic Content: Incubation Requirements And Training Needs | تطوير المحتوى الرقمي العربي من خلال الاحتضان | A |
| 11 | May 2010 | 10-0206-May 2010-1000 | Promotion of the digital Arabic content industry through incubation | مشروع تعزيز صناعة المحتوى الرقمي العربي في الحاضنات التكنولوجية | A,E |
| 12 | 13 April 2011 | E/ESCWA/ICTD/2011/Technical Paper.3 | Mechanisms for community-driven interactive Arabic multimedia content | آليات لبناء محتوى عربي تفاعلي متعدد الوسائط للمجتمعات المحلية: البوابات الإلكترونية المجتمعية | A |
| 13 | March 2012 | E/ESCWA/ICTD/2011/4 | Regional Profile of the Information Society in Western Asia 2011 | ملاحظ مجتمع المعلومات في غربي آسيا 2011 | A,E |

APPENDIX II

SELECTED EXAMPLES OF OECD COUNTRY POLICY INITIATIVES FOR DIGITAL CONTENT⁷¹

| | Overarching digital content policy | Institution |
|----------------|---|--|
| Australia | Digital Content Strategy/Digital Content Industry Action Agenda/Strategic Framework for the Information Economy 2004-2006/National Broadband Strategy | Department of Communications, Information Technology and the Arts |
| Austria | eContent: Initiative/Multimedia Business Austria | Ministry of Economic Affairs and Labour |
| Belgium | Digitalisation du patrimoine scientifique et culturel des Établissements Scientifiques Fédéraux (ESF) | Ministre de la Politique Scientifique |
| Czech Republic | Participation in the eContent(plus) programme of the EU | Ministry of Informatics |
| Denmark | Programmes that aim to foster the development and diffusion of digital content | Danish Ministry of Science, Technology and Innovation/Danish Ministry of Culture |
| France | Audiovisual sector and content policy for the information society | Ministry of the Economy, Finance and Industry, Ministry of Culture and Communication, Prime Minister Directorate for media development |
| Germany | Information Society Germany 2010 (ID2010) | Federal Ministry of Economics and Technology |
| Hungary | Initiatives in the field of digital content, public sector information and cultural content | Ministry of Informatics and Communications |
| Ireland | Strategy for the Digital Content Industry in Ireland/Digital content steering group | Forfas, Department of Enterprise, Trade and Employment/Enterprise Ireland |
| Italy | eContent Policies and Actions Plans/Interministerial Commission on digital content in the Internet era | Minister for Innovation and Technology/Sviluppo Italia/Innovazione Italia/Ministry of Education, University and Research |
| Japan | Promotion policy for content business/e-Japan Priority Policy Program 2004/Intellectual Property Strategic Program 2005 | Intellectual Property Strategy Headquarters, Cabinet Secretariat/MIC/METI |
| Korea | New Growth Engine, Digital Contents Industry Broadband IT Korea 2007/IT 839 Strategy/Digitization of Public Information Resources/Digital Contents Industry Promotion Policies | Ministry of Information and Communication/Korean National Computerization Agency |
| New Zealand | Digital Strategy/National Content Strategy/Government's Growth for Innovation Framework/R&D Strategy for creative industries | New Zealand Trade and Enterprise/Minister of Information Technology, Minister of Communications/Ministry of Culture and Heritage |
| Norway | Norway's Strategy for Electronic Content/Public sector information programmes | Norwegian Ministry of Trade and Industry/Ministry of Modernisation |
| Portugal | Information Society Action Plan (PASI) | Directorate General for development of the Information Society, Ministry for the Information Society |
| Switzerland | No overall content policy but various thematically oriented policies, such as in the field of digital geographical information (e-geo) or media art programmes | Federal Office of Topography, Federal office of Culture and others |
| United Kingdom | Digital Strategy March 2005/Creative industries Taskforce/Digital Content Forum | Prime Minister's Office/Department of Culture, Media and Sport/Department of Trade and Industry |
| United States | New Generation of American Innovation (Promoting Innovation and Economic Security through Broadband Technology)/Universal Service Program with the Schools and Libraries Program | Federal Communications Commission/White House (A new generation of American Innovation) |
| EU | eContent(plus) programme/eEurope Action Plan/High-level Group on DRMs/6 th Framework Programme (IST)/Directive on re-use of public sector information/Audiovisual Policy | DG Information Society/DG Education and Culture |

Source: OECD. This table provides examples and is not meant to be comprehensive. Activities of Intellectual Property Right Offices not included.

⁷¹DSTI/ICCP/IE (2005)3/FINAL, OECD Working Party on the Information Economy DIGITAL BROADBANDCONTENT - digital content strategies and policies

APPENDIX III

A PROPOSED LIST OF DIGITAL CONTENT INDICATORS⁷²

| S.N. | Proposed List of Digital Content Indicators | Source |
|------|--|---------------|
| 1 | Proportion of Internet users by language, country level | WSIS proposed |
| 2 | Proportion of Internet users by language, top ten languages, global level | WSIS proposed |
| 3 | Proportion of web pages, by language | WSIS proposed |
| 4 | Number of domain name registrations for each country-code-top-level domain, weighted by population | WSIS proposed |
| 5 | Number and share of Wikipedia articles by language | WSIS proposed |
| 6 | IP counts (Millions) | ARO-ITU |
| 7 | Internet Hosts (Millions) | ARO-ITU |
| 8 | Number of cctld in the top 1 M sites | ARO-ITU |
| 9 | Number of Internet Sites (in gtld) | ARO-ITU |
| 10 | Digital Content Used per capita, country, language Month (GB) | ARO-ITU |
| 11 | Cost of 1M b/s per Month | ARO-ITU |
| 12 | Local Market Share of the Leading Search Engine | ARO-ITU |
| 13 | Number of Wikipedia articles per language per million speakers | ARO-ITU |
| 14 | Number of "country code top-level domains" per 1000 residents per Economy | OECD |
| 15 | Number of Facebook subscribers per 1000 residents per economy | OECD |
| 16 | Number of online newspapers per 1 million residents per economy | OECD |
| 17 | Number of streaming online radio stations per 1 million residents per Economy | OECD |
| 18 | Number of Flickr photos geotagged per 1000 residents per Economy | OECD |
| 19 | Number of YouTube uploads per 1000 residents per Economy | OECD |
| 20 | Number of web pages per language | OECD |
| 21 | Number of Wikipedia articles per language | OECD |
| 22 | Number of Blogs per language | OECD |
| 23 | Number of tweets per language | OECD |
| 24 | Existence of a national initiative for promoting Digital Arabic Content (DAC) in a country | ESCWA |
| 25 | Existence of cyber legislation related to the copyright of digital content in a country | ESCWA |
| 26 | Existence of a registered Arabic ccTLD (country code Top Level Domain) | ESCWA |
| 27 | Percentage of DAC to the total content available in all languages under the ccTLD | ESCWA |
| 28 | Number of registered national domain names per 1000 inhabitants | ESCWA |
| 29 | Percentage of Arabic websites visited of top 100 websites visited in a country | ESCWA |
| 30 | Percentage of DAC to the total available in all languages on the Internet | ESCWA |
| 31 | Percentage of Arab Internet users of total Internet users | ESCWA |
| 32 | Number of Arabic search engines available on the Internet | ESCWA |
| 33 | Share of Arabic language used on social networking platforms (%) | ESCWA |

⁷²Connect Arab Summit 5-7 March 2012 Doha, Qatar.