Steps towards a Med. area
Confidence in the Mediterranean digital society

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THE MEDITERRANEAN area has been defined as a liquid continent with solid frontiers and mobile inhabitants by Bruno Etienne. This inland sea unites more than it separates, as the last three millenniums have shown. From North to South and East to West, the societies that border it have woven close cultural, religious, social and economic links. A look at these economic links quickly raises the question of their nature and intensity.

We know that the quality of links influences the intensity of the exchanges that characterize them. One of the ways of judging the quality of a relationship is by the degree of trust that each party places in the other. The stronger that trust is, the more significant the exchanges that bring about these links will be, and reciprocally, since significant and recurring exchanges reduce the aversion to risk and generate trust.

Trust and digitizing exchanges

TRUST IS ONE OF THE KEYS to building the Mediterranean as it is for any community: it can even condition the way networking is organized in countries in the South. It is often said that digitizing economies and societies involves a thorough transformation of relational and transactional mechanisms. This makes it legitimate to ask whether digitization completely changes the structure of trust, and as a consequence reduces, increases or redirects the quantity and quality of exchanges.

Computerization is comparable with the industrialization of the past, i.e., a historical process that takes place over a long period aiming to automatically process all kinds of information. In our era of global economies, referred to as knowledge or immaterial economies, the key development and competitiveness factors are skills, knowledge, research and innovation along with information and communication technologies (ICTs), in particular information systems.

To develop cooperation, exchange and commerce, in particular electronic commerce, between all Mediterranean stakeholders, we need to guarantee secure transactions and instil trust into exchanges and electronic data storage. This is a major condition of North-South co-development. Increased trust and standardized practices between users in Mediterranean countries entails sharing electronic resources and co-developing teleservices, training and research. This means that computer resources need to be shared between all interconnected countries according to periods and requirements, based on a model of sharing electrical network capacities (one of the conditions for sharing resources is the existence and development of high-speed communication networks).

The digitalization of the economy and society has the effect of reinforcing, destroying or reducing trust mechanisms within communities (i.e. families, economic groups, etc.) and between these communities, which make up a society or economy. Several types of proximity coexist within a community (i.e. cultural, political, economic, religious, etc.). Which types of proximity produce greater trust in Mediterranean society today? How do social networks, for example, transform these proximity mechanisms?

Digitalization is the source of numerous paradoxes: it creates greater distance (compared to a face-to-face situation), but at the same time reduces it (by linking up remote correspondents). Its impact on trust is therefore clearly ambivalent: it reduces trust built on strong inter-individual relationships, but also can reduce mistrust when inter-individual relationships are delicate.

> **Internet and the satellite media relayed information that was viewed as trustworthy because it came from the citizens themselves.**

The way that authority (of whatever nature) uses digital technology can influence the way that society and the economy perceive its use: trust in each other or in a partner cannot be totally disconnected from the reciprocal trust between authorities and citizens. There is clearly a public governance of trust, and the ICT policy chosen influences on this governance. How can the introduction of the Internet transform this governance of trust, and what incidence do control mechanisms have on access and content, i.e. the control of the democratic form of these communication networks? The 2011 Arab revolts have brought this question to the forefront of the global arena.

Trust and its governance are the pivotal notions of this work. They are fundamental in conditioning the whole structure of networking in Southern countries. The issues of trust in commercial and information flows need to be resolved, in both North-South and South-South collaborations.

Although the Mediterranean world is characterized by the importance of the family and the trust that reigns there, the current transformations clearly show how technological equipment provides a way of existing as an individual outside close communities. Mobile telephones, electronic messages and even social networks give many young people the chance to live parallel, disconnected lives, with one foot in tradition and the other in modernity, involving a degree of opposing values and uncertainty as to the development avenues to follow.

Digital trust and governance: the Arab Spring

IT IS IMPOSSIBLE TO ignore the role that ICTs played in the Arab Spring. In the space of a month, Tunisia, where the movement sparked, underwent an upheaval that has been described as possible to explain but impossible to predict. Electronic media appear to have played a crucial role in the revolt:

- Internet became a kind of resistance platform for the revolutionary cause, via blogs and electronic messages; Facebook played a significant role, although probably a limited one. Internet was used to massively disseminate local unfiltered information released from cybernauts themselves;
- Satellite television channels, mainly Al Jazeera, relayed information to the outside world refuting official communications;
- Interpersonal communication methods, like telephones and text messages, were used to relay the information far and wide.

Internet and satellite media relayed information judged to be reliable because it came from the citizens themselves, who had witnessed the facts they recounted. Despite significant attempts, particularly in Tunisia, to control access to information or restrict dissemination, the mass content of the media was too much to control. Digital ecosystems, made up of multiple components (Internet and its applications, mobile telephones, satellite chains) thus founded a new form of trust in the information they were transmitting: young people, frequently judged as being disinterested in public events and uniformed, in a few weeks spontaneously and efficiently brought down two totalitarian regimes that were convinced that they controlled these very ecosystems.

TECHNOLOGY authorizes a kind of underground circulation of information, which allows citizens to attain freedom, impress their will and especially defy censorship. The digital culture, which basic citizens have made their own, tends to generate a culture of resistance that can overturn lifestyles and contest power, create new hierarchies of knowledge and a new relationship to information and particularly its origins.

These technologies have been used in a very different way from that intended by their designers and from that intended by the authorities which allowed them to spread. They have been used as a source of social innovation, which has been used to gain freedom and rise up against the authorities; is this freedom therefore a new source of trust?

This movement reveals the importance of both the outside, which accredits information through its multiplicity (e.g. Arabic TV stations and western Internet – inspiring trust for the Mediterranean region), and bottom-up flows (from citizens towards the social group – inspiring trust for individuals). Another expression of this duality comes in the support provided by international hacking communities to counter censorship and disseminate messages at all costs. New communities are forming around electronic media and so new forms of trust, disconnected from sociocultural heritage. Technology clearly introduces rupture.

This democratic repossession obviously cannot resolve all of the challenges in the countries concerned: corruption, education system performance, public sector dominance, unemployment, anarchic urbanization with its environmental costs, food dependence, etc. Nevertheless, it constitutes a basic condition for resolving them through information that is more reliable, freer and more confident.

If it achieves this feat, digital culture could modify the nature of trust in means of governance, authorities, and thus in exchanges and relationships within societies and economies. It is likely however that this gain will remain fragile, perhaps even precarious, and not become generalized. The pendulum of control and censorship could change direction in countries that have not yet completed their democratic transition as well as in countries that have. It

> **Technology facilitated the underground circulation of information, allowing inhabitants to conquer freedom and defy censors.**

could be that this freedom from authority and even traditions is judged as too rapid, perhaps even harmful (with slogans along the lines of Too much freedom kills freedom), and that the progress made in early 2011 is challenged.

Since they cannot control this new world, some regimes might react to the events of spring 2011 by at least trying to restrict its scope. For example, by slowing down the outbreak of 3G mobile technologies, which bring Internet to cell phones. Controlling access, validating content and putting pressure on bloggers could be tougher in certain contexts and regions. It is not certain that the Arab Spring will result in increased penetration and massive assimilation of this new digital culture, even though the prevailing sentiment is that any barriers erected will not stand up long to the demands of the people.

Here an important paradox emerges. One of the reasons that the Tunisian and Egyptian regimes were overthrown so quickly was the mass access to these means of communication and media; yet this access was made possible thanks to the public policies put in place by the defunct governments and by the existence of local skills used to get round the media barriers set up by the public authorities. In this sense, we could say that the authorities built the path to their own downfall! Tunisia and Egypt are among the countries with the highest ICT levels in the region, amounting to almost 10% of GDP. The countries still struggling to stop their powers from being overthrown (i.e. Syria, Yemen and Libya) are those where the ICT sector is under 5%. The leaders who promoted ICTs in their countries were aiming to open their economies up to a fast-growing sector with outside demand that would help resolve certain development issues, like education, access to knowledge, access to outside markets, etc. They were also trying to give out an image of modernity and openness. Recalcitrant countries do not appear to have had this concern . It cannot therefore be ruled out that the 2011 Arab Spring will lead to temporary public supervision of ICTs as a way of controlling effects judged to be harmful by the holders of power. Peoples' trust in these technologies will only make the leaders wary and in return, and leaders' trust in these technologies will only make the people wary. ICTs therefore need to be moved out of the power arena.

Tunisia and Egypt have some of the highest ICT levels in the region (nearly 10% of GDP).

Internet revolutions or Facebook revolutions? The example of Tunisia

THE REVOLTS IN THE ARAB countries were frequently referred to in the North as Internet revolutions: a veiled woman brandishing a keyboard at the Egyptian demonstration. The symbol of the keyboard replaces the flag. What role did Facebook actually play in these revolts? Was it a crucial player or a simple technique for channelling communication and circulating information?

Hillary Clinton called Facebook and Internet symbols of liberty when she said, "Internet is freedom!" Yet to simply boil down the Tunisian revolt to web-based freedom of communication is hardly satisfactory. Facebook and the other social networks (i.e. Twitter and Youtube) are techniques and tools used mainly by young people, whereas the revolution involved all social levels and ages.

When censorship and the regime disappeared in Tunisia, the use of Facebook mechanically diminished. Facebook is not a variable explaining the revolution, there are much deeper economic, cultural and sociological factors (i.e. unemployment, social tension, economic disparity; in ten years, the number of unemployed graduates has tripled, etc.). Facebook and Al Jazeera completed and accelerated information but they do not in any way explain this revolution.

Another tool facilitated the circulation of information: Wikileaks. Its cables confirmed Tunisians' convictions about the corruption rife in Ben Ali's family and the authorities and brought to the surface the unsaid thoughts of the people and the values they share with the outside world.

The expression of general social malaise was expressed in the street, but there needs to be a rallying cry, often a leader, and confidence to act. It is generally political parties, unions and institutions that push revolutions. Today the paradigm has changed: social networks focus an awareness of feeling the same way as each other. A group effect is built up within a community sharing the same aspiration. This is not enough, though, for taking action. The Tunisian trade unions played a major role, and particularly the teachers' unions.

Within social networks, trust works by imitation. This puts traditional forms of trust into question.

BOX 1　Social networks in Southern Mediterranean countries

In 2005, all Arabic countries put together generated 30,000 blogs; in 2006, there was the same number in Morocco alone; and in 2008 there were half a million. At end 2010, Facebook had over 20 million users in the Arab world.

Ranking of countries using Facebook

1) **Egypt**　　2) **Saudi Arabia**
3) **Morocco** 4) **United Arab Emirates**
5) **Tunisia**　6) **Algeria**
7) **Jordan**　8) **Lebanon**[1]

Percentage of the population using Facebook in early 2011[2]

World : 637 million

Turkey: 31.8%, i.e. 24.8 million

Tunisia: 20%, i.e. 2.2 million (+9% in one month)

Egypt: 16.5%, i.e. 5.45 million (+6.7% in one month) ; 300,000 Twitter accounts and 250,000 blogs

Morocco: 7,6%, i.e. 2.45 million

Algeria: 4.6%, i.e. 1.6 million (+6.6% in one month)

Libya: 4.5%, i.e. 249,000 people

Yemen: 1%, i.e. 256,000 people

Syria: banned until 8 February

Lebanon: 23.4% (end 2010), i.e. almost one million. In relative terms, Lebanon appears to be one of the most "addicted" countries in the region. Despite the mediocre quality of Internet services, the country ranks just behind Bahrain (36.9%), the UAE (42%) and Qatar (59.7%).

France: 32.4%, i.e. 21 million

United States: 47%, i.e. 146 million

(1) Sources : *Dubai School of Government*, republished in the report *Lebanon This Week* by Bank Byblos.
(2) *Le Monde,* 22/02/2011, *socialbakers.*

Can we say that social networks had an amplifying effect on the revolt? Up to what point does revolution through imitation work?

Sharing information combined with sharing solidarity and responsibility among the people. Trust can be instantaneous and transitive via social networks.

Technologized digital trust comes to join two other forms of trust: traditional trust and political trust. Facebook, for example, amplifies traditional trust phenomena. Twitter, however, makes it possible to follow events constantly and helps to organize social action. The problem is the run-on effect of these different types of trust. When traditional trust (unions/parties) no longer functions, digital trust takes over.

Does digital trust conflict with traditional trust? These two types of trust are not in conflict, but they are extendable and can take different forms and adapt to the constraints of the environment. They are expressed through technology, as in the past they were expressed through the spoken word or organizations. Social networks are increasingly credible in the absence of official credible channels. Shared videos are replacing discredited official media. Bloggers, for example, catalyse phenomena, but they are not enough to spark off the passage to action. However, with shared information, fear changes sides and everyone can feel involved. The information available on social networks is thus considered to be reliable in comparison with traditional media. After censorship disappears in countries like Tunisia, social networks play a more limited role: they are used to complete official media. They cannot replace public and political debate.

The mistrust of traditional official news media in Tunisia left the way open for Arabic satellite news channels (especially after European channels pulled out of the southern media area). Currently, there are increasing attempts to reconfigure the media area in these countries, particularly now that television is starting to go through the Internet implying the disappearance of satellite.

The vitality of social networks

WHAT ABOUT THE SOCIAL networks that seem to have played a crucial role in the Arab Spring? Do they differ from those used in Europe? What impact do they have on trust? **BOX 1**

We have little information on the world map of social networks, which are after all recent phenomena, but in 2010 an intern working at Facebook produced an instructive map of the global links created by Facebook[1]. This representation of the Facebook world in the Mediterranean reveals a degree of homogeneity in Facebook connections made in Europe, with the possible exceptions of Spain (but not Portugal) and Russia. This map also shows the high level of Facebook connections linking Europe, Turkey (as well as Malta and Cyprus), the Maghreb, and also Egypt, Israel and Lebanon. On the other hand, Libya and Syria are almost absent from this map because the countries have largely blocked access to the networks. The map also shows the links between the North and South Mediterranean. It reveals that these links are often stronger than those from South to South.

The examples of electronic commerce and social networks highlight a paradox when it comes to trust. In an established relationship of trust (commercial exchanges), digital communication can be problematic because it eliminates face-to-face meetings and negotiation, but when a relationship of mistrust or ignorance exists, it can encourage interpersonal exchange. Paradoxically, in the Mediterranean, digital communication can transform trust into mistrust or vice versa depending on the situation and the activity.

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(1) *Visualizing Friendships* byPaul Butler, monday 13 december 2010, 17:16 www.facebook.com/notes/facebook-engineering/visualizing-friendships/469716398919

ICT development in the Mediterranean

WITH 7 % OF THE GLOBAL population, the two sides of the Mediterranean alone produce 15% of the world's annual wealth and carry out 16% of trade, thus representing the leading GDP on the planet. In the North, ICT represents under 2% of GDP, and in the South, 3%, 4% or even 5%!

There is probably a correlation between investment in ICT and development under certain conditions. Countries in the South have set up ambitious government policies, ranging from the Génie initiative in Morocco to generalize the use of ICT in education in a country where illiteracy is close to 40%, to the e-Algérie 2013 programme and i2010 in Turkey, for technological innovation and access to technology as part of the single European information space.

These policies have led to the emergence of specialized technology clusters like the Egyptian Smart Village which specializes in cutting-edge technologies, and Casa-Nearshore Park in Morocco, a service outsourcing centre that is set to generate 30,000 jobs and train 10,000 engineers and 22,000 graduates in offshore trades.

Map of links made by Facebook

Spreading the use of ICTs in countries with young populations is a strategic line of development. This involves building a knowledge-based economy integrated into markets in the North, and in particular offering future perspectives to young people in developing countries, who are keen to access the new communication tools.

Although consumption has developed rapidly in the digital Mediterranean, production still has scope to increase. Progress in mastering and accessing mobile phone and IT technologies is satisfactory, but the computerization of society and the economy is slower and access to networks is still difficult in many regions. Mediterranean consumers can even be considered as advanced users, like inhabitants in emerging countries. Mobile phones are used for remote banking, getting economic information, accessing emails, etc. The way that the North perceives the use of ICTs in the South is not always pertinent: mobile phones are viewed as a means for sto-

rage, digital memorizing and exchanging documents. Although there are clearly access inequalities, there are a wide range of ICT uses in the Mediterranean. The arrival of a new generation that is knowledgeable, even expert, on ICTs is an essential factor in networking the southern zone.

We should stamp out the idea that ICT equipment and uses in the South of the Mediterranean might be insufficiently developed to be able to drive renewed exchanges and trust.

Although the development of fixed networks is average for 2010 given the development achieved at the start of the decade (but with a move towards high speeds), the growth in mobile networks has made it possible for countries in the South Mediterranean to rapidly catch up with the equipment levels of countries in the North. If we compare penetration rates of mobile networks, there is a clear overlap zone between countries in the South and North (European Union). **GRAPH 1**

These figures should clearly be treated with caution: they are based on numbers of SIM cards rather than subscribers (one subscriber can have several SIM cards) and this number largely depends on the rate of prepaid cards on the market, which is much higher in the South than the North Mediterranean. Nevertheless, most countries have penetration rates of over 70%, and lag only a few years behind European development.

In Algeria, for example, mobiles have changed everything: 250,000 SIM cards in 1999 with a single operator. With its second operator (Orascom), Algeria has the highest penetration in the South (except for Israel), with 29 million chips (14 million subscribers). An Algerian spends at least 15% to 20% of his salary on telecommunications. Prepaid cards dominate the market (98.4%).

This penetration is less balanced in terms of fixed networks as shown by the above bar chart. Fixed networks have tended to suffer from the development of mobile networks in both North and South: while in the North they covered the
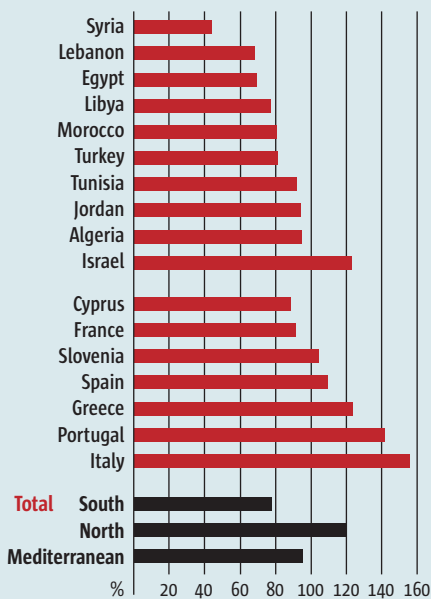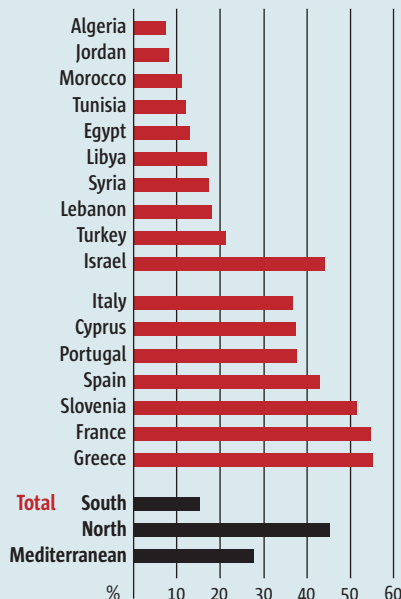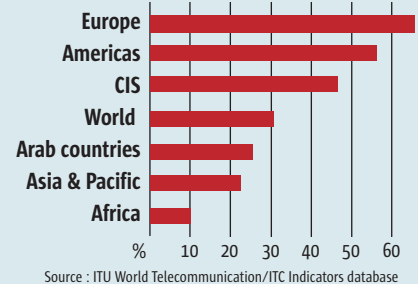
GRAPH 1   **Mobile network penetration**

Syria	
Lebanon	
Egypt	
Libya	
Morocco	
Turkey	
Tunisia	
Jordan	
Algeria	
Israel	
Cyprus	
France	
Slovenia	
Spain	
Greece	
Portugal	
Italy	
Total South	
North	
Mediterranean	

% 20 40 60 80 100 120 140 160

GRAPH 2   **Fixed network penetration**

Algeria	
Jordan	
Morocco	
Tunisia	
Egypt	
Libya	
Syria	
Lebanon	
Turkey	
Israel	
Italy	
Cyprus	
Portugal	
Spain	
Slovenia	
France	
Greece	
Total South	
North	
Mediterranean	

% 10 20 30 40 50 60

GRAPH 3   **Percentage of Internet users**
Estimation 2010

Europe	
Americas	
CIS	
World	
Arab countries	
Asia & Pacific	
Africa	

% 10 20 30 40 50 60

Source : ITU World Telecommunication/ITC Indicators database

GRAPH 4   **Average population age**

Syria	
Jordan	
Egypte	
Libya	
Morocco	
Algeria	
Turkey	
Israel	
Lebanon	
Tunisia	
Cyprus	
Portugal	
France	
Spain	
Slovenia	
Greece	
Italy	
Total South	
North	
Mediterranean	

% 10 20 30 40
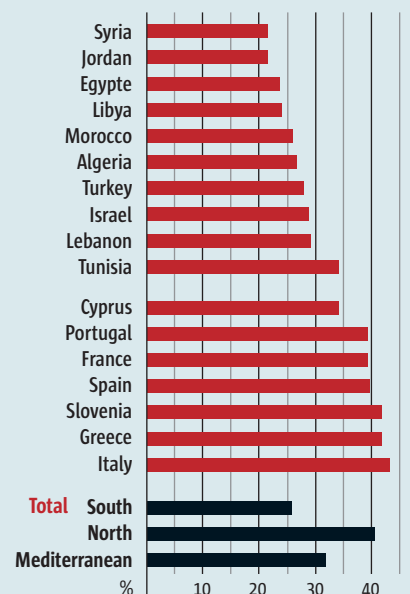
population before mobile networks irrupted, in the South they have remained undeveloped. This is significant as third-generation networks arrive, bringing high-speed and very high-speed Internet (in particular with fibre optic connections), which will be easier to put in place in the North than in the South given the considerable civil engineering already in place. Access to high-speed Internet will mainly be made through mobile networks in the South, except for countries where local subsidiary networks have been developed (e.g. Tunisia). **GRAPH 2**

The opposite correlation can be observed between the penetration of fixed and mobile lines: the fewer existing fixed lines there are, the more mobile lines there are, at equivalent development levels. In general, this correlation moves upwards with a rise in a country's standard of living.

The move from fixed to mobile networks has been radical South of the Mediterranean. Whereas in the early 2000s, traffic mainly travelled through fixed networks, often via shared channels, in 2010, it was travelling through mobile networks, fostering its rapid growth.

High-speed networks develop differently depending on local context: in places where landlines are fairly developed, the penetration of high-speed broadband is rapidly progressing (e.g. nearly 10% in Turkey); in places where landlines are still little developed, high-speed access will clearly be made through mobile networks using third, and then fourth, generation technology.

Although the telephone gap has been reduced by the explosion of mobile phones, the Internet gap

is more significant, as the Internet development figures show (ITU data). **GRAPH 3**

Assimilation of ICTs is occurring fairly quickly in southern countries. This is partly because of the rapid extension of networks and the significant drop in connection and communications costs on both fixed and mobile networks, and partly due to demographic structure. Young people in the South have considerable generational impact since services available on the new networks are absorbed more quickly by the young. This phenomenon is particularly strong since inhabitants South of the Mediterranean are on average ten years younger than those in the North.

Average population age is an important feature of Mediterranean societies, with young people in the South (average age between 20 and 30) and old people in the North (over 40). **GRAPH 4**

Education is crucial here and the role played by ICTs in this area is constantly increasing. Thus, in Algeria, many engineers are self-taught: they have worked with technical documentation on the web
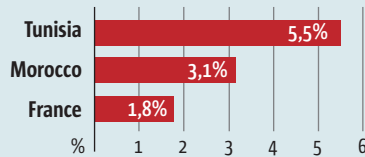
and ended up with certificates. To make their CVs competitive, they find out about new techniques themselves. Things are very different in the North, where education is part of a career plan taking place in engineering schools that remain one step ahead of the population in knowledge and techniques.

Moreover, individuals have a very different relationship to technology in the South than the North. One example is the development of Internet cafés (3,000 in Algeria frequented by 200 to 250 people a day).

Penetration rates are therefore far from negligible, and inhabitants are probably more likely to adopt new services. Remarkably, however, the ICT sector is proportionately more developed than other sectors of the economy in the South than it is in the North.

The communications sector (post and telecommunications) represents around 1.8% to 2% of GDP in developed countries; this ratio is much higher in countries in the South, where it can reach 5% of GDP, like in Tunisia. It is around 4% in Turkey. In Morocco, ICTs represent 3% of GDP; there are 21 million mobile subscribers, i.e. a penetration rate of 69%, 700,000 Internet subscribers, 2.7% on fixed lines, i.e. a penetration rate of 8.95% and 3 million users of credit and bank cards. **GRAPH 5**

If we cumulate the communications sector with the other sectors included in information and communication technologies (e.g. software and information systems), these sectors can represent over 10% of GDP.

Equipment, access to networks and use of ICTs South of the Mediterranean are therefore significant. In the space of ten years the telecommunications situation has completely changed, and the same goes for computers and audiovisual media. The events in Egypt and Tunisia showed that the use of ICTs played an essential, although not decisive, role.

Security challenges of exchanges made with ICTs

THE REVOLTS IN Egypt and Tunisia show that ICTs moved from acting as a development showcase to a tool for political mutation. This means that mastering computer security presents a major challenge to the Mediterranean over the coming decade.

ICT progress in the Mediterranean has followed an irregular cycle that is hard to interpret when we look at the factors of its development. Several elements have, at precise moments, acted as accelera-

GRAPH 5 **Percentage of communications in GDP** 2008

Tunisia	5,5%
Morocco	3,1%
France	1,8%

tors in developing an ecosystem for encouraging the emergence of ICTs available to inhabitants.

In North Mediterranean countries, ICT development followed a fairly similar, uniform pattern: in the 1970 and 1980s, supply was mainly drawn by demand from companies looking to increase productivity and by authorities seeking modernization. In the 1990s, with the arrival of the customer-server and the rise of Apple and especially Microsoft, demand shifted towards the domestic market, partly thanks to the hardware supplied by Asian clone companies, which helped make technologies financially accessible to households and obliged the computer giants to rethink their economic model in the face of newcomers like Acer and other brands that have since risen in the ranks. The arrival of Internet in the second half of the 1990s completed the cycle of ICT assimilation at all levels. Lastly, mobile lines, and in particular mobile access to data, opened up a new era in comprehensive communication.

DEVELOPMENTS TOOK a different shape South of the Mediterranean. Despite similarities with the Northern model, countries in the South hesitated for a long time on how to approach ICTs in the absence of a clear vision. Authorities were less concerned with modernization and companies were less focused on productivity gains, faced with juggling more significant business concerns. The IT giants' massive move to the South in the 1990s was not based on market size criteria, but rather on country stability and the policies of some leaders to appear to be on the cutting edge and present the face of a modern, technological country. One of these, Egypt, became a regional hub, hosting three quarters of the regional Middle East Africa offices of the big names in IT. Morocco became North Africa's logistical and commercial base for the major computer brands; and Tunisia, which focused more on developing expertise, became a major computer service provider in the region. Algeria, which in the 1970s had possessed the leading computer company in Africa, the Entreprise Nationale des Systèmes Informatiques (ENSI), suffered decline in the black decade of the nineties, when everything revolved around developing ICTs.

However, technological progress in the South is not the same as democracy. The most advanced countries in terms of regional ranking, like Egypt and Tunisia, have shown through recent events that there is no correlation between open digital com-

munication and freedom of speech. On the contrary, in Tunisia standard bottleneck control was being practised and the Tunisian Internet Agency (ATI) was in the recent past preventing access to Youtube and Hotmail. In contrast, Algeria and Morocco opted for a more open strategy on Internet access and acquiring ICT solutions. However, Algeria took a backward step in 2010 by removing twenty-three Internet Service Providers (ISPs) including the leading broadband provider, and re-establishing the monopoly of the state operator, Algérie Telecom. In Libya, there is a voluntary policy to curb ICT development.

East Mediterranean countries, like Lebanon and Turkey, are following similar patterns to Europe.

After a frenetic race to catch up in the South, the phenomenon appears to be taking a different turn. The arrival of mobiles in the 2000s considerably accelerated ICT assimilation in the South, rather like the arrival of PCs in the North.

After a decade during which countries in the South wanted to modernize just about everything, a new mistrust has set in the face of the unavoidable and uncontrollable development of ICTs. The first, so-called catching-up period, was linked to the presence of the former generation of leaders in the South, who had little knowledge of technology and often unwittingly underestimated the power of ICTs viewed as gadgets or modern devices. Ten years ago in the South a company or institution's level of modernization was measured by the number of computers and machines it had. The arrival of the Internet generation on the work market and the ICT boom partly explain this slowdown. This generation, which is more aware and skilled, takes closer care in choosing technologies, understands security issues better and is more vigilant regarding risks.

This observation can be illustrated by the South's extreme wariness of the arrival of cloud computing and its fears of not being able to control the placement of data, whereas ten years ago, the most sensitive institutions and administrations were still communicating using Yahoo and Hotmail addresses hosted in servers in unknown locations.

The concentration of security technologies in North America and Israel and the growing pirating expertise in Eastern Europe and Asia add to the incapacity of these countries to control the backdoor.

Added to this, the passage to complete digitalization over the coming years, the convergence of the media (television, radio, satellite and mobile) around Internet technologies like triple play and LTE (standard for high-speed mobile connections) raise the issue of managing data security. Will ICT assimilation and development be affected?

Individual countries' independent mastery of data security and access constitutes a major sovereignty issue. The economic model still needs to be found, and so does the route, but in any case, it will condition the ICT situation in the Mediterranean.

Recommendations

CONFIDENCE IS AN accelerating factor in relations and exchanges. Strengthening trust between individuals, peoples and nations appears to be a necessary step in developing the communities they live in. The Mediterranean community displays certain types of trust but is nevertheless subject to recurring mistrust. How can the advent of a digital society and economy – or in other words, a society and economy where relations and exchanges take place in digital environments or via digital media – modify the nature, force and extent of the trust that reigns there?

This report contains two main types of observation:

• Digital technology, by rendering relations and exchanges more opaque, can reduce mistrust, but it can also encourage it when associated with bad services or coercive policies;

• Digital technology profoundly modifies the relational ecosystem: more than an interpersonal medium, it can be the vector of a common area.

To this end, the spread of digital technology is not just a question of technological assimilation; it calls for a genuine strategy and suitable governance so that it can be used for national, regional and Mediterranean development.

Digital technology is too important to be strategically led and governed at national level alone. Europe has understood this: it has made the information society the pivot of EU policy on economic growth, the creation of a single market and the advent of a society of knowledge. Digital technology can encourage the construction of this common area that will gradually constitute a community if it is suitably governed. This major challenge in terms of

government strategy can also be found at Mediterranean level, and the reason we propose creating a Mediterranean common digital space to act as a catalyst of trust between individuals, peoples and states bordering this liquid continent.

We suggest five strategic avenues for national and supranational Mediterranean public policies on ICT. The first of these is essential, since it conditions the whole approach.

For a digital Mediterranean

MANY COUNTRIES in the South (Algeria, Morocco, Tunisia, Egypt, etc.) have devised a policy for promoting ICTs (e.g. Maroc mumérique 2013 and e-Algérie 2013). Our wish is to re-establish the Mediterranean as a cradle of exchange and communication. A fluid Mediterranean digital space will result from connecting these energies and pooling these policies.

To create this digital Mediterranean, we propose setting up three tools:
- A (computing) cloud defining a .med space;
- A user and reference charter and a Mediterranean ICT label to encourage standard practices;
- Debate on potential policies to protect intellectual property, privacy and sovereignty.

1ˢᵗ TOOL. Mediterranean cloud

The strategic idea is to develop digital platforms for North-South and South-South cooperation. This could be called a Mediterranean cloud in the general interest. As the title of this study indicates, the idea is to create a digital space shared between countries in the Mediterranean, which we have called a *.med space*. This accredited platform with the suffix *.med* would encourage the trade of Mediterranean produce and activities like tourism and economic exchanges in general.

The development of an optical network cloud would also encourage the circulation of innovating ideas in the telemedicine field – a prime social sensitive area – which, thanks to ICT, would benefit health services and contribute to reducing costs. This proposition for a digital .med platform complements national or regional ICT development plans put in place by Northern countries, the EU's Lisbon agenda and the different plans of Southern Mediterranean countries.

2ⁿᵈ TOOL. User and reference charter and a Mediterranean ICT label

This platform should be accompanied by a user and reference charter along with EU funding and regulations. For trust to grow or even start between Northern and Southern countries, and even in South-South relations, rules and standards need to be set up between three parties (users, companies and states), and must be monitored and controlled. These standards should guarantee service quality through strict, exacting regulations coming from states or interstate agreements.

Clearly, the issue remains of some states controlling digital information, possibly through political control and censorship, as the recent Arab revolutions highlighted. Can we really govern trust? The introduction of Internet, social networks and information systems transforms this potential governance of trust.

The answer would be to create a Mediterranean ICT label. This would involve accrediting strategic ICT tools like software programmes and firewalls. The consumption of North American software programmes by Southern countries opens the door to products from countries that do not practise labelling. If countries in the Southern Mediterranean have a security issue with ICTs, then why not (with support measures) call on their elites located in Silicon Valley to settle the problem?

3ʳᵈ TOOL. Initiate debate on policies to protect intellectual property, privacy and sovereignty

This debate should work on assessing the advantages of reinforced protection, the benefits of certain openings and the degree of standardization to aim for, especially in terms of administrative procedures and their inter-operability (e-government), but also open public data.

Creation of a Medtic fund
(public-private partnership)

THE ISSUE OF TRUST needs to be rethought and redrawn following the events of the Arab Spring. This trust should take the shape of the creation of a Mediterranean investment fund devoted to ICTs. This would be a Mediterranean fund for developing ICTs to which each government would make a financial contribution along with the major regional operators. The fund would finance all .med accredited start ups as well as exchange platforms.

The creation of this fund – a development and coordination instrument – would guarantee the existence of the .med space, which without solid funding would remain in the ranks of wishful thinking. One of the funds' first projects would be to create a cloud hosting all of the .med spaces.

It would actually be a good idea to create a foundation to encourage expansion round the Mediterranean. The Medtic fund would aim to be profitable, whereas the foundation could promote cultural and scientific projects thanks to a company membership fee used to fund projects.

Support for a Mediterranean industrial policy: content production

CONTENT PRODUCTION is costly and cruelly lacking in Southern countries. Thanks to the fund, development and innovation projects could be consolidated through Mediterranean funding. Can the digital economy break down certain countries' mistrust by making the origins of designers anonymous, thereby reducing the wariness of users in the North? Products and skills from the South are clearly becoming more visible. But we should go a lot further because the industrial production of content, including software, in the South is fundamental. This would also help to stem the drain of skills, relocate activities in their original countries and could encourage nationals working in Silicon Valley to return home.

However, there is no existing content support structure via Southern governments. Without a genuine content industry, the construction of network infrastructures and the development of ICT consumption make Southern countries even more dependent on the Northern countries that produce the know-how.

Relocating production activities to their original countries, particularly Southern Mediterranean countries, also supposes, as mentioned above, developing ICT education and research, along with the necessary incubators and start ups, especially for young engineers. Similarly, this Mediterranean fund with public/private backing would have the effect of multiplying support measures for small, often highly innovative, companies working on ICTs.

One content-developing project would be to digitalize the archives of the Mediterranean cultural and historical patrimony. This project would forge an alliance between history and the technologies of the future. The creation of a WebTV for the Mediterranean, broadcasting films on tourist spots in the South and its cultural riches (arts, culinary art, weaving, economic projects, etc.) would create a showcase for the South.

This ambitious project has growth potential since numerous companies could opt to become patrons of sub-sets of the digitalization of Mediterranean capital culture, e.g. culinary art. It would lead to company creation (in Tunisia, the digitalization of the patrimony created 2,000 jobs), networks and partnerships (public/private).

Research and training, an essential route for Mediterranean policy

OBVIOUSLY, ICT training is called for. The priority is to educate the young, along with trainers, government officials and economic leaders. This is however not the only issue at stake, nor the most important. If this new common space does not include the type of research and training that can open the door to an extended society of knowledge, then we will be missing major opportunities.

Three domains appear crucial in developing the Mediterranean cloud:
- **renewable energy sources, especially solar.** The South has some major projects for producing renewable energy that could be proposed to Europe. These kinds of production and the networks that will take them to consumption centres cannot be conceived without mobilizing numerous digital technologies, both for production and for electric networks: a gigantic project could be opened to develop digital skills specific to major energy networks;
- **electronic payment.** Economies in the South need to modernize their payment systems and make use of electronic cash, thus facilitating market exchanges while maintaining major economic balances necessarily conditioned by cash convertibility: a second important issue;
- **network security.** The question of national sovereignty over a growing intangible economy will not go away on its own; this is also a major issue for nations present in this common space.

These three domains could form the heart of a research and training measure to place on the Mediterranean cloud. These training centres could issue regional, or even international, certificates in their domains of capability, which would contribute to their intakes and notoriety. This would make it possible to develop in the South not just high-tech skills, but specialization in line with the needs of the Mediterranean world. Top-level centres in North and South should be authorized to give these training courses.

Vital measures for encouraging research, training and innovation involve creating:
- **a network of technical clusters on research, innovation and development** in the South to teach skills (making it possible to pool efforts and build up a

shared training policy). These research centres would help to train champions and encourage elites to return to a visible location (Algeria, Egypt, etc.). For example, in the renewable energy domain, Algeria could host a centre for developing energy efficient software; Egypt is already very present in IT;

- **a Mediterranean observatory of data and the intangible.** One of its advantages would be to access coherent data or efficient tele-geography. The observatory could assess difficulties emerging in exchanges and trust, for linguistic reasons (English, French, Arabic), for example as evoked above, relating to the perception of call centres since a deterioration in service quality is often associated with countries in the South Mediterranean;

- **a virtual**, **networked University of the Mediterranean**, a sort of digital house of the Mediterranean. This university would help train engineers as well as artists, designers, scriptwriters, etc. and give new impetus to content creation.

Celebrate the digital Mediterranean with an annual, cultural, scientific and pedagogical event

AN FOUNDING AND federating event annually gathering Mediterranean players, particularly young people, who are prime ICT users, to promote and recompense a project or innovating and original ICT or network initiatives. This get-together would encourage exchange and trust between all parties and seal their cooperation.

The annual event could include several activities, relayed by institutions, the media, social networks and different ICT stakeholders:

- at the event's core would be promotion of the Mediterranean heritage: the best projects of the year in this area would be recompensed with a label awarded at the event. This highly mediatised, perennial label could be awarded to a project from the previous year: e.g. restoring an item of historic Mediterranean heritage or a website on its patrimony, 3D simulation of a place, or any digital work that highlights Mediterranean heritage;

- artists' exhibitions using ICTs would be organized in several capital cities and simultaneously accessible in the others via Internet or other digital media;

- an evening could be devoted to Mediterranean music with young Mediterranean groups giving concerts in different towns simultaneously transmitted in the media and/or by Internet. Prizes could be given to the artists chosen by different Mediterranean audiences;

- prizes awarded to innovative and original ICT initiatives (e.g. start ups, software programmes, games, etc.) could also be given at the event, taking place in a different Mediterranean town each year to encourage exchange between ICT players and recompense the best practices or scientific and pedagogical initiatives in ICT.

A unifying name would need to be chosen for the annual event, symbolizing different parties in the Mediterranean and their connection through digital networks. Suggestions are Chabaka Méditerranée or Med'TIC.

The foundation mentioned above would take care of promoting cultural and scientific projects thanks to a company membership fee or patronage. ●

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