Factors intensifying centralisation of information technology in Iran

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***Abstract*— In this article, factors responsible for increased centralisation of information technology (CIT) are explained. Although, there are a large number of complex causes behind CIT and their roots in Iran, in this paper, the followings have been considered: defining mega projects in information technology (IT) without expert preliminary analysis, exaggerating the outcome of works carried out, down-up centralisation, centralised governmental controlled of media especially TV and Radio, IT centralised expert conferences, workshops, and educational centres in the capital. The circumstances surrounding these causes are described by examples, due to the unique course of IT development in Iran which is different to many other countries with similar potentials. Interestingly, these causes and their aftermath would easily be understood as normal consequences of the trend, IT development has forced upon Iran. As such, the challenges encountered should be understood based on their specific characteristics.**

***Index Terms*— centralisation factors, Information Technology, Iran, IT development**

I. Introduction

Man is facing a serious challenge in dealing with the ever increasing information and documents being produced, in recent years [1], [2]. The amazing growth experienced in IT development, its wide range of appliance and the users' needs have provided many challenges for governmental authorities, companies, IT experts and the like, some of which are intrinsic and inevitable while some could be mitigated by improving the system design[3]. IT centralisation is a specific challenge experienced by many countries (including Iran) which one expects to be able to improve it by employing an integrated system design adjustment, as indeed, a main aim of IT is reducing centralisation in general[4]. The extent of the problem is revealed when one realises the nature of challenges faced in correcting IT development for the country. To illustrate this, one should understand the social problems associated with CIT, the extent of which is so huge and often undocumented in the public domain that is often impossible to be covered in one article or heading. Moreover, in Iran, some IT related organisations, for instance the ministry of information and communication technology (ICT), who are responsible for IT management nationally, intensify these challenges in their attempt to control more vigorously the flow of information[5]

The role of the authorities at various managerial levels in enhancing Iranian CIT has been extensively discussed in the literature[6], [7] and sometimes criticism surpass common sense in judgement to such an extent that one could not ignore jealousy and market-share grab as the root-cause of arguments. For obvious reasons we have avoided as far as possible naming organisations and legal bodies in our description of the cases discussed. Public opinion on the extent of centralisation in the Iranian society is so severe that it has almost become an inflexible fact of life[8], [9]. This renders any attempt to improve this, a fruitless endeavour amongst expert, contractors, executors and general public alike, and to alleviate such belief is in itself a major challenge[10].

II. Exaggeration of limited successes achieved

A large number of IT companies and research centres have long been exaggerating their potentials and limited success in order to win new contracts, pretending that they are the only serious contender for such huge scale projects nationally. Systemic preferential treatment of these companies/research centres (which interestingly often carry somewhere in their titles the word "advanced") by the government or their associated lobbies, in effect eliminates competition or prohibits natural growth of potential competitors. Mass media deliberately elaborate on this type of exaggeration, thereby exacerbating the problem much more than the companies.

For instance,in 2001,the national Iranian telecommunication company, announced implementation of an advanced text-to-speech (TTS) system in Farsi for which a research centre at the Amirkabir university in Tehran was awarded for this great success. In practice, this project had never been completed as presented in the media. Nearly a decade later, the work is not still complete and requires further research. Contrary to the media's intent which is claimed to enhance self-belief amongst public opinions, this not only discourages interested researchers and companies from persuading the subject, but also disappoints the dissatisfied end-users when they are faced with such incompetence national products, and makes them suspicious of any claim made by any national producers, present and future.

In this respect, for instance, 'Science and Art Foundation' (SAF) who was interested to employ TTS in Farsi, disappointedly had to turn to foreign software companies to

Acknowledgement

The research for this paper was financially supported by the University of Kashan, grant no. 572089

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ISSN 1947-5500

develop such an application following a marathon attempt at the mentioned product, and to justify her decision, SAF publicly announced that no Iranian company is capable of developing this application[11].

From the interested researcher's point of view, they first tried to win joint-ventures/subcontractors or even obtain employment with these so-called advanced companies/research centres in Tehran, here all IT centralisations occur, and following a great deal of efforts and confronting confused and half-hearted responses from the contracted companies, they disappointedly leave this type of work after incurring costs and penalties in an uncertain legal framework and become hesitant ever again in their future attempts to be involved in such applied IT projects nationally.

III. Mass media

Mass media, plays an essential role in information production, but also it contributes to CIT provoking. The slightest achievements or news in IT are often highlighted at the centre, while those made by any outsider are either ignored or rendered as insignificant. Unfortunately, mass media and associated organisations (Soroosh publisher, national radio and TV, associated websites, and hardware) are very heavily centralised in Tehran. Indeed for several decades a few major radios and TV stations were being broadcast only from Tehran. It is only within the last decade or so that long hour TV programs and other provincial channels have become operational.

In general, it should also be noted that those who are in close contact with issues at hand are able to assess matters more realistically than those who receive information from a long distance (e.g. the mass media). Hence, public tend to ignore their own potentials as a result of the propaganda provided by the mass media. Iran's economic structures has been shown to have influenced dramatically by a title of a low circulating newspaper, let alone the impact of mass media propaganda heading[12]. The names of public places, halls, exhibitions, companies, researchers, interviews, and websites are often repeated in the mass media, as if they belong to the whole nation. The provincial news offices regularly broadcast news and propaganda material associated with the centre, including IT achievement.

The main logical argument against decentralisation in such an environment under the influence of mass media is the heavy costs associated with hardware movements. However, this could be corrected in a rational manner when upgrading hardware is due in near future, by transferring the new installations to new sites outside the centre. Another excuse for lack of decentralisation has been put forward as lack of access to expert operators away from Tehran. This is very much false as often those who purportedly represent expert companies are often entrepreneur from other cites than Tehran who have migrated there for job-seeking opportunities.

Another important point worthy of consideration in the lack of success for the mass media provincial offices is their inability in absorbing more viewers primarily due to their lower quality programs, lack of independence and financial resources, limited audience, and ignoring the local needs and values of the rest of population[13].

The first TV broadcasting station was established privately in Tehran in 1958, and operated in a monopoly for 11 years when it was closed down and nationalised primarily due to lack of political tolerance. However, it is worth noting that the contractual agreement was revitalised for five more years in which imports of all TV sets were also awarded to the same company. This was some 8 years before revolution, indicating that CIT problems faced today are not post revolution issues, but have deeper social roots. National Iranian Television Network (NITV) was lated established in 1966 employing some 9000 people by 1979 in a centralised monopoly by the government[14].

The same applies to newspapers, where Tehran's local newspapers are sold in large numbers all over Iran, while this is not true for almost any provincial paper in Tehran[13]. Comparing to general papers, IT magazines and news bulletins are also heavily centralised, so that apart from a few exceptions, all IT papers and magazines issued are produced, published and distributed from Tehran.

IV. Exhibition, technical workshop and conferences

A large number of exhibition, technical workshops and conferences are held annually at Tehran venues with the full support of the government. This attracts all IT active users and experts to the centres and its companies which have gradually gained an associated brand name in the industry for themselves. This is despite the fact that many experts have serious doubt in the practical success of these exhibitions, and amazingly, although these doubts are being expressed publicly amongst field experts in recent years, this lack of success has not had any effect on the organising policies of these exhibitions at the centre, nor their messages had been conveyed effectively to the public at large[15], [16]. As for the application of IT expertise in advertising and running the day-to-day affairs of such exhibition, this is also being handled by the government, thereby contributing to even more inevitable CIT in recent years. Several half attempts to organise such exhibitions at other cities in the last few years have resulted in limited participation of public and IT companies[17]. The outcome of such limitations has brought about a dilemma for the organisers in which they are left with no choice but to follow an inefficient failed policy of centralised IT exhibitions in Tehran. Some of the continuous disadvantages of these types of CIT include: allocation of biased managers, planners, members of the conference panels, and financiers who further encourage CIT inadvertently, lack of public awareness on the efficiency of such activities, exaggeration of achieved successes by the centralised IT companies..

V. Centralisation of IT educational and research centres

Despite an incredibly rich culture of education and practical research in various fields throughout the history of Iran, modern universities were established more than a century ago

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ISSN 1947-5500

in a very centralised manner in Tehran which continued for more than 6 decades afterwards. The first universities established outside Tehran came about in 1960's in cities such as Shiraz, Isfahan, Tabriz, and Mashhad. A large number of students studying IT related subjects at universities in or around Tehran are often attracted into the advantageous centralised research centres, educational institutions and IT companies in Tehran, thereby intensifying accumulation of the IT expert work force and encouraging their migration there. Hence, any IT entrepreneur looking for technical experts, would have little choice but to turn to Tehran job market, which in turn this further enhances the centralisation of the industry in the capital.

VI. Signing large IT-related contracts without adequate technical evaluation

For a variety of reasons, many major IT contracts are assigned to companies in Tehran receive recommendations from influential officials who are themselves centralised in Tehran. However, experience suggests that many contracts have not been adequately scrutinised from a technical and performance points of view, and as such they do not come to fruitions. Let's consider a case study which frequently occurs in the industry: Electronic-visa, proposed and executed by the Iranian foreign ministry in 2004 to facilitate tourist industry into the country[18], was supported heavily by the authorities. Many tourist experts[19] were wary of the degree of success being stressed on the IT-related issues at the time and preferred other necessary measures to be taken, above what had been put forward. Their concern was ignored as has been often the case, and the proposed measures failed drastically to include services needed in hotel reservations, transportation, public relation campaigns and advertising, education, etc. The first e-visa was issued in 2004, while the second one happened nearly 2 years later. Subsequently, the whole project was restarted in 2006 with a further budget increase of 45 bn rials[20], which still could not afford to take off the project properly at the time and had numerous problems several years later in 2010[21]–[23]. The project still remains unsuccessful and has had little effect in improving the tourist services, or visa processing as envisaged or claimed ever since[24]. In fact, many believe the whole project was a wasteful attempt condemned to failure due to lack of preliminary technical evaluation. It is worth noting that many such projects never came close to fruition, let alone having one or two success cases associated with them (e.g. setting up the National Operating System, National E-mail Server, National IDC, National Search Engine and even a project titled National Internet![25]–[27] or National Information Network, which has consumed more than bn22000 Ir.R. After a decade [28], …). In some of these projects, even the principle logic behind them cannot be understood, but amazingly, they have been approved and funds have been allocated and purported to have been spent on them. Some blame contemptuous efforts in defining a national IT-related project with excuses such as cultural/intellectual development of the nation[10], or even the special needs of Iran and its securities concerns have been put forward without presenting any justified explanations for them.

VII. Bottom-up centralisation

This expression seems to contradict the centralisation notion. However, with little attempt to study the customers of IT-related products, the notion becomes more clearly understood. There are a large number of IT customers who ignore persistently local suppliers in favour of those operating from Tehran, disregarding the quality of their needed services or products, perhaps due to their own ignorance of the subject/recognising the active market players. It is interesting that no other centralised city in Iran can match Tehran in such enterprises. Many local suppliers of IT-products or services try representing the companies in Tehran at their own territory, thereby losing their creativity and independence to a trade-off for being a salesman with some short-term profit advantages without sufficient support, training and control from their head-office. Some services do not require representation, but many local suppliers do complain that without these representations, hardly any local customer will refer to them, and in effect representation is an excuse to introduce the customers to their own products in ambiguous working relationships in which customer cannot be protected by law for after-sales services and quality control. On the other hand, there are many instances of low quality products being sold by the main suppliers, whose repairs are left to the local suppliers with little financial award or customer satisfaction, thereby, belittling the local suppliers, furthering lack of trust between them and their customers and consequently enhancing centralisation of the industry.

As far as short term technical education and specialised courses are concerned, there are many such classes that are offered only by companies in the capital (due to franchising rights) to official (governmental and local authorities) end users in other cities. This also contributes to centralisation, as officials are introduced only to the companies in Tehran and their employees, and they remain distrustful of the local suppliers even to carry out the simplest of IT-related educational courses. At times, many such classes are introduced to the officials in other cities under the auspices of advanced educations programs without proper justification as to whether a country like Iran, or those specific officials (executives) from the governmental bodies, needs such courses or education in that circumstances to improve their effectiveness in carrying out their routine duties. Other consequences of this type of representation services are expressed below.

A. Lack of maintenance support

Little or no effective surveillance or support is offered by the main suppliers at Tehran. For instance, representing preliminary computer-training centres does not need expert support and supervision from the main companies at the centre. However, the local officials readily leave these trainings to representative companies, while local companies could well be in a position to carry such duties. Interestingly, the so-called smarter training companies try to highlight their allegiance directly to foreign educational companies, to bolster their short-term financial gains and improve their chance to

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ISSN 1947-5500

absorb new customers. This leads to lack of confidence amongst the representing companies and denial of their own potentials to develop their services.

B. Out-sourcing to substandard local companies

Major companies in the centre often win contracts regarding projects in other cities, and sometimes outsource them in part or whole to the local companies in the same cities. Although this manner could contribute in practice to decentralisation, but other negative consequences may arise which includes: profit being subsidised by the major companies in the centre, job profile of companies in the centre being extended unrealistically, maintenance commitment and service quality are not adequate in practice, and service unreliability is increased at all levels for the industry.

C. Unofficial recommendation

Government or related authorities can, and at times do, manipulate the supply chain in all their subordinate companies or agencies. This elusive jobbery or collusion can take a subtle form of unofficial recommendation by higher ranking officials (executives) in the organisation in favour of purchasing from specific companies or their products; in other words, corrupting the system and leading to monopolistic practice in purchasing products/services without leaving any track. The recommendation often accompanies special payment facilities where prices are subsidised and/or partly paid by the government. For instances, the ministry of science recommends an automation system (e.g. SABA system) for all the universities in the country with payment facilities and openly exaggerate performance and ignore weaknesses of their imposed system. It should be mentioned that this is not limited to Iran or developing countries. For example, the International Telecommunication Union (ITU) often recommends standards and parts for major consumer purchasers (national telecommunication industries in different countries) who (apart from North Korea) rarely dare to do otherwise. One could expect that, designating ITU standards as the recommended one in the industry, plays a significant role in dampening the nationalists sentiments in the developed countries[29]. Some of the issues mentioned here, reflect the roots of up-to-bottom centralisation. It should be noted that local purchasers do not have to accept these recommendations or abide by it. However, more or less, they all do follow these guidelines, primarily due to a bottom-up centralisation behaviour, which are influenced by the followings:

1) *accusation fear*
   The vendee officer/purchasing manager in any major organisation often is threatened by the accusation of colluding with suppliers especially the local ones. As such, he/she is hesitant to purchase from the local suppliers and refer more readily to the recommended suppliers in the centre, without fearing for his integrity to be questioned, irrespective of his deed.
2) *blameless for defects*
   In case of defects or dissatisfaction from the products or services received, the vendee can simply refuse to accept responsibility for his selection or not following a reliable procedure for this as he has followed the recommended guidelines. Often, no one in Iran will report or carry-out a follow-up action for such previous mistakes made in this regard.
3) *laziness and avoidance of responsibility*
   Any vendee should follow a reasonable appraisal strategy in purchase to ensure satisfactory quality and cost efficiency. This requires a certain amount of work, design, time and effort. Recommended purchasing release vendee of these tasks.
4) *Side-rewards*
   The vendee can often use the company's facilities including cars, drivers, or earn extra wages as assignment fees or carry out other personal activities while travelling to the centre. He/she therefore may prefer to follow the recommended purchase than devise a different supply system dealing with locals.

It should be mentioned that the effects of public behaviour associated with bottom-up centralisation can be observed in many major IT projects implementations. Often national policies are too ambiguous and rich in contradictions and adopt measures which promote centralisations of different natures, simultaneously. In many developing countries, high ranking decision making is influenced by lack of confidence in their implementing system and conservatism possibly being inherited from some forms of past colonialism or present corruption.

VIII. Conclusion

In this article, a number of factors influencing IT centralisation in Iran have been discussed. This is a subject which has managed to attract a great deal of opposition whenever it is discussed in the public or scientific arena. IT centralisation has become a cultural issue for which no specific individuals or groups can be blamed for. There are individuals and companies who criticise IT centralisation in Iran but are more driven to enhance their own market-share and privileged financial gains by influencing the policy-makers. Despite the limitations imposed, there are many companies which have managed to progress well and contribute to the welfare of IT related industries in Iran, and the significant difference in motives and reasoning between justice-seekers and the opportunists should be distinguished. Amongst the factors influencing IT centralisation, exaggeration of limited success, mass media, scientific, educational and trade gatherings such as exhibitions, technical workshops, research centres and conferences are discussed here. Also, unhealthy contracting practices and roots of bottom-up centralisations are briefly explained.

CIT is one of the problems facing the increase use of IT in Iran. Digital divide between the provinces in Iran has also increased by CIT. Furthermore, it causes more economic and social problems. Hence, discussing factors intensifies CIT is useful and informative.

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ISSN 1947-5500

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