Journal papers:

[1] F. M. Madani, "A Novel Adaptive Router Placement Scheme in Hybrid Wireless Optical Access Network," *International Journal of Information & Communication Technology Research (IJICTR) - Special Issue on New Trends in Computer Networks*, vol. 8, pp. 1-8, Winter 2016.

A typical wireless optical network takes advantage of passive optical network (PON) architecture in the back-end for last-mile broad-band connectivity combined with wireless mesh network at the front-end to provide high-quality cost-effective Internet access to end users. Wireless gateway routers collect upstream traffic from end-user devices within their transmission range and route them toward a nearby optical network unit (ONU) station and vice versa in the downstream direction. A major objectives of planning wireless optical networks is to place ONUs and wireless routers (WRs) in such a way to fully cover all end-users with minimum deployment cost while ensuring some quality metrics, such as delay or throughput. Computational complexity of mathematical formulations presented in previous works, restrains from scaling the network size and user population in accordance with the realistic circumstances. In this paper, we address this issue by introducing a novel adaptive segmentation scheme to offload the problem complexity without sacrificing the optimality of solution. Extensive numerical simulations verified the applicability of our approach to large-scale networks.

[2] F. M. Madani, "Scalable Framework for Translucent Elastic Optical Network Planning," *Journal of Lightwave Technology*, vol. 34, pp. 1086-1097, 2016.

In this paper, we present a scalable framework for regenerator placement (RP), routing, modulation level selection, and spectrum allocation (RMSA) jointly in translucent elastic optical networks. We introduce first a path-based mathematical formulation to solve RMSA problem given a designated set of regenerator site locations. In the preceding RP phase, the MILP model was invoked repeatedly to find the optimum sequence of regenerator site endowment. The scalability issue of MILP model is tackled by partitioning unserved demands into small groups and solve the proposed MILP model in recursive manner. In contrast to previous works that suggested random, volume, and hop-length-based one-pass demand ordering, we devise a novel adaptive routing and impact-based demand grouping and ordering scheme that outperforms the conventional random or resource consumption-based ones. We show that the proposed recursive MILP yields solutions to RMSA problem closely fitted to the ideal nonrecursive MILP counterpart under a wide range of traffic load variation even when the group size is reduced to one. In order to extend further the scalability of the recursive MILP, we develop heuristic algorithms fueled by the notion of availability-based spectrum assignment, impact-based path selection, and demand grouping and ordering. Numerical simulation verifies that the proposed heuristic obtains nearly the same performance as the recursive MILP but in very shorter running times. This enabled us to precisely analyze the behavior of the Deutsche Telecom network operating in real-like fiber passband setting under heavy traffic load. We show that the attainable network throughput exceeds 100 Tb/s.

[3] F. M. Madani, "Energy Efficient Design Strategies of Translucent and Transparent IP Over WDM Networks," *International Journal of Information & Communication Technology Research (IJICTR)*, vol. 7, pp. 21-27, Winter 2015.

A surge of interest toward design and implementation of green networks are emerging in recent years. One obvious trend to reduce energy consumption of major active network components is to craft backbone network architecture that takes into consideration traffic grooming of low-rate IP traffic as well as power-aware virtual topology design schemes and RWA. Previous research efforts developed design strategies which assumed digital processing of incoming traffic flows at every node structure in the optical layer (DXCs). This architecture provides full wavelength conversion capability by the use of optical transponders (OEO convertors) thus reduces complicated RWA problem to a simple routing problem at the cost of sacrificing lightpath transparency. Moreover, introduction of transponders give rise to extra sources of power consumption which contrasts over goal. In this paper, energy-minimized design of IP over WDM networks based on optical cross connects (OXCs) is investigated. Integer linear programming formulation as well as heuristics for two design strategies viz. multi-hop lightpath and direct bypass have been developed and their performance with regard to power consumption and relative bandwidth utilization are compared. Simulation results indicate superior performance of the proposed strategies with regard to previous studies.

[4] F. Mousavi Madani, "Double Queue Scheduler for Differentiated Setup Delay Virtual Optical Network Embedding over Elastic Optical Network," *The Modares Journal of Electrical Engineering*, vol. 13, pp. 43-53, 2013.

Elastic optical network has recently raised immense research efforts to serve as a highly flexible and scalable platform required by the emerging on-demand cloud applications. Besides, virtual network embedding on top of elastic optical network has been introduced as a promising solution to fine-grain sharing of node processing and optical bandwidth resources. Owing to the diverse delay sensitivity requirements of heterogeneous cloud applications, an efficient double queue scheduler is presented, to deliver differentiated setup delay embedding in a fair manner. Extensive numerical simulations carried out over two prototype substrate networks, demonstrated that our proposed scheme can concomitantly enhance blocking and fairness performance of the single queue scheduler over wide range of offered traffic loads.

[5] F. Mousavi Madani, N. Dastranj Mamaghani, and A. Sharifi, "Conceptual Model of Information Technology Architecture for Service-Based Enterprises," *Journal of Information processing and Management*, vol. 27, pp. 662-687, 2012.

This paper presented a conceptual model for information technology architecture. For this goal, after reviewing conceptual models of enterprise architecture, key dimensions of them were described and prioritized by using Shannon’s entropy. To determine building blocks of each dimension, customer requirements have been mapped to functional requirements by using axiomatic method. The model has been described by goals, components and relationships. Then, it has been validated by surveying experts.

[6] F. M. Madani, F. Saghafi, and M. Ghazimirsaeid, "Knowledge and Innovation Management Synthesized Model in Learning Organizations," *International Journal of Engineering & Industries*, vol. 2, pp. 78-85, 2011.

Although there is a broad literature about every aspects of knowledge management and innovation management, few studies has taken the relationship between these two fields in account. Yet, more studies have been done recently in this field. Introducing a concept called "knowledge innovation",

some experts have suggested mixing the concept of innovation with the concept of knowledge. They argue that innovation management should be based on knowledge. In other words, knowledge and innovation have a close relationship with each other and management should take both of them in account. The purpose of this study is to provide a profile of the relationship between these two concepts and their effects on creating persistent competitive advantage for the organization. In this article, we have scrutinized knowledge management models using meta-synthesis method and derived a mixed model. Furthermore, using meta-synthesis approach, innovation management models are studied and their main divisions are specified. Finally, using attained knowledge from the models, a comprehensive model is proposed by composing parallel factors.

[7] M. Nourouzi, F. Zandi, and M. F. Mousavi, "Ranking The Methods of Applying Information Technology in Schools' Teaching-Learning Process," *Quarterly Journal of Educational Innovations*, vol. 7, pp. 9-34, Summer 2008.

Nowadays, information and communication technology (ICT) plays a fundamental role in many fields. Education is one of the fields that has been reformed by information technology. In this research, the application of information technology in teaching-learning process, has been investigated in educational system. Using the experiences of different countries in applying information technology in teaching-learning process, twenty three different methods of ICT applications were extracted. Then, using the viewpoints of information technology experts in the education system, these methods were evaluated based on ten different indexes, for three educational stages of general, theoretical and technical high school. Finally, using TOPSIS decision making techniques, the obtained data have been analyzed and the best innovative methods for different educational stages have been presented and explained.

[8] F. Mousavi Madani, "Study on the attainable capacities of wavelength-division multiplexed optical transmission system based on dispersion-shifted fiber and non-zero dispersion fiber," *International Journal of Communication Engineering (IJCE),* Vol. 1, No.1, Summer 2001, pp 3-13.

[9] F. Mousavi Madani and K. Kikuchi, "Design theory of long-distance WDM dispersion-managed transmission system," *IEEE J Lightwave Technol.,* Vol. 17, No.8, Aug. 1999, pp 1326-1335.

This paper describes a novel design theory of long-distance wavelength division multiplexed (WDM) dispersion-managed optical transmission systems. Assuming that the transmission distance, bit rate, and number of WDM channels are initially known, we investigate the optimum dispersion allocation and input power per channel to achieve the minimum channel spacing. Based on the design guidelines for single-channel and multichannel systems, we establish the optimal design strategy. Details of the design procedure are demonstrated for 2.5-, 5-, and 10-Gb/s10000 km WDM systems by using computer simulations. Next, we study the impact of the fiber dispersion slope on the usable wavelength span, and show that the attainable capacity of the representative 5-Gb/s 10000 km WDM system employing the post-compensation scheme cannot exceed 100 Gb/s. Finally, we propose several techniques to approach the ultimate capacity of the WDM system and show that up to 1 Tb/s (2005 Gb/s) 10000 km system can be implemented without utilizing the in-line dispersion slope compensation scheme. We also discuss the 10 Gb/s-10000 km WDM system employing in-line dispersion slope compensation.

[10] F. Mousavi Madani and K. Kikuchi, "Performance limit of long-distance WDM dispersion-managed transmission system using higher order dispersion compensation fiber," *IEEE Photon. Technol. Lett.*,Vol. 11, No.5, May 1999, pp 608-610.

In conventional long-distance wavelength-division-multiplexed (WDM) dispersion-managed transmission systems, since both the dispersion-shifted fiber (DSF) and the standard single-mode fiber (SMF) have positive dispersion slope, perfect dispersion compensation can be achieved only for a single wavelength channel. The transmission window of such systems is severely limited by the interplay between the self-phase modulation and the residual dispersion. In contrast, WDM dispersion managed systems comprised of a SMF followed by a higher order dispersion compensation fiber (DCF) with opposite second- and third-order dispersions can clear out this drawback. We investigate the performance limit of 1D-, 2D-, and 40-Gb/s WDM systems employing the higher order DCF by extensive computer simulations.

Conference Papers:

[11] Z. Salek and F. M. Madani, "Multi-level Intrusion detection system in cloud environment based on trust level," in *Computer and Knowledge Engineering (ICCKE), 2016 6th International Conference on*, 2016, pp. 94-99: IEEE.

Cloud computing is a new way to address a wide range of resource needs. Cloud environment provides a framework for dynamic and saleable use of services. It provides access to computing and data storage resources on a pay per usage model. Although there are many known advantages for cloud, security is still one of its most challenging issues. Intrusion detection systems are a common security tool which can also be used in cloud environment to increase the level of security. But conventional intrusion detection systems are not able to fully handle the features of the cloud, such as highly distributed or the variety of services. Also there are differences in security needs for each service or user of different cloud service providers. In this study we proposed a multi-level architecture for intrusion detection system based on different levels of risk level identified for each user. User's risk level can be defined through the computed trust level; as risk level can be reveres of trust level for each user. With identified trust level, users are categorized in to three groups of “High risk”, “Medium risk” and “Low risk”. After the risk levels are identified and users are assigned to a security group, pre-configured IDS agent is assigned to user's virtual machine. IDS are configured in three types of HIDS, MIDS and LIDS in proportion to the security groups described before. These three types of IDS agents vary in number of rules in their rule set, and configuration of rules in each level. A higher level agent for each type of IDS controls the performance and updates rule sets. There is a global agent which collects alert logs to analyze them for detecting correlation in alerts. This architecture improves resource usage, time and packet drop without a tangible impact on accuracy.

[12] F. M. Madani and S. Mokhtari, "Virtual optical network embedding over elastic optical networks with set-up delay tolerance," in *Electrical Engineering (ICEE), 2015 23rd Iranian Conference on*, 2015, pp. 450-455.

Elastic optical network has recently been attracted massive attentions to realize a highly-flexible virtual infrastructure needed by emerging on-demand cloud applications (e.g., ultra-high definition TV, grid computing, e-science). Virtual network embedding over elastic optical network provides promising solution to fine-grained sharing of node processing and bandwidth capacity resources.

Due to the fact that heterogeneous cloud applications call for different levels of service differentiation, we investigate an efficient scheduling algorithm, for the first time to our knowledge, to adopt set-up delay tolerances in the embedding procedure. Particularly, requests holding-time awareness was not taken into account to represent unpredictability of expiry times in most realistic situations. Numerical simulations carried out over two prototype substrate networks, demonstrated that our proposed scheme could significantly enhance the performance of immediate mapping strategy over wide range of offered traffic loads.

[13] F. M. Madani and S. Mokhtari, "Fragmentation-Aware Load-Balancing Virtual Optical Network Embedding (VONE) Over Elastic Optical Networks," *CLOUD COMPUTING 2015*, p. 42, 2015.

Optical network virtualization has recently been studied extensively as a promising solution to share physical infrastructure resources among different users and applications. Virtual network embedding over elastic optical networks has recently attracted massive attentions as a promising solution to realize fine-grained flexibility in resource provisioning. Variation of bandwidth requirements associated with virtual network requests accompanied by nondeterministic nature in arrival and holding times of them result in fragmentation of spectral blocks along both frequency and spatial directions. Spectral fragmentation refrains commitment to spectrum contiguity and spectrum continuity constraints in lightpath establishment thereby severely exacerbate blocking probability, as well as spectrum utilization. Fragmentation-aware routing and spectrum assignment problem has been extensively studied in the context of elastic optical network provisioning. These schemes, however, cannot be applied to virtual network embedding since we cannot refer to routing and spectrum assignment problem to implement virtual link mapping without regard to virtual node mapping. Therefore, in this paper, an integer linear programming formulation for fragmentation-aware virtual network embedding was developed for the first time to our knowledge. Numerical simulations for three different scenarios were carried on and demonstrated that our proposed model outperforms the previous work over a wide range of offered traffic loads under the same conditions.

[14] F. M. Madani, "Relative least impact dynamic lightpath provisioning algorithm for multi-fiber WDM network," in *Telecommunications (IST), 2014 7th International Symposium on*, 2014, pp. 771-776.

In the classic dynamic lightpath provisioning scheme, path selection and wavelength assignment decisions were made on the basis of mere availability of network resources to accommodate an incoming request. In this work, mean offered load to each node pair and ongoing network status information were advantageously utilized to develop heuristics for informed RWA decision attempting to find the route and wavelength that impose minimal impact on blocking of future incoming requests. In contrast with some recent works which require knowledge of lightpath holding time or employ rerouting of other established lightpaths which incurs undesirable disruptions, proposed heuristics require mean traffic load only which can be easily acquired via traffic policing schemes. Moreover, significant reduction in blocking probability compared with classical dynamic RWA could be achieved without complicated processing-intensive ILP formulations within tractable computation time which suit practical implementation.

[15] F. M. Madani, "An efficient segment-based defragmentation algorithm for dynamic lightpath reconfiguration in WDM networks," in *Telecommunications (IST), 2014 7th International Symposium on*, 2014, pp. 789-793.

Uncertainty in connection requests arrivals and departures brings forth inefficient resource allocation of online RWA heuristics for dynamic lightpath provisioning. Thereby, periodic re-optimization can play invaluable role in improving resource utilization of WDM networks. This paper investigates network re-optimization carried in two consequent phases: a) finding new wavelength assignment for a subset of lightpaths to minimize spatial fragmentation with the least relocation cost, i.e. lightpath reconfiguration, b) migrating the set of relocatable wavelength paths to the new configuration without incurring undesirable traffic disruption. We assumed sparse wavelength conversion capability where a small set of network nodes are equipped with full-range wavelength convertors to accommodate segment-based defragmentation. The proposed reconfiguration scheme can effectively squeeze optimization cycle-time since only a small set of colliding segments are processed in each cycle. For the migration phase, a Make-Before-Break wavelength relocation methodology is introduced to avoid connection disruption while maintaining minimum relocation cost. The effectiveness of defragmentation process is periodically assessed through the proposed fragmentation ratio metric. Numerical simulation demonstrated significant reduction in blocking probability over a wide range of offered traffic loads.

[16] F. M. Madani, "Optimized Design of Energy-Efficient IP over WDM Networks," in *3rd International Conference on Electric and Electronics*, 2013.

A surge of interest toward design and implementation of green networks are emerging in recent years. One obvious trend to reduce energy consumption of major active network components is to craft backbone network architecture that takes into consideration traffic grooming of low-rate IP traffic as well as power-aware virtual topology design schemes and RWA. Previous research efforts developed design strategies which assumed digital processing of incoming traffic flows at ever node structure in the optical layer (DXCs). This architecture provides full wavelength conversion capability by the use of optical transponders (OEO convertors) thus reduces complicated RWA problem to a simple routing problem at the cost of sacrificing lightpath transparency. Moreover, introduction of transponders give rise to extra sources of power consumption which contrasts over goal. In this paper, energy-minimized design of IP over WDM networks based on optical cross connects (OXCs) is investigated. Integer linear programming formulation for two design strategies viz. multi-hop lightpath and direct lightpath have been developed and their performance with regard to power consumption and bandwidth utilization are compared with prior studies. Simulation results indicate superior performance of the proposed multi-hop transparent lightpath strategy.

[۱۷] فریبرز موسوی مدنی، یاسمن چریانی، "تحلیل رخداد حادثه قطار نیشابور از دیدگاه قابلیت اطمینان قطعی و فازی"، مجموع مقالات هفتمین کنفرانس نگهداری و تعمیرات، خرداد ماه ۹۰.

افزایش سطح اطمینان دستگاهها، سیستمها از سطح ساده تا پیچیده و حتی شبکه‌های پیچیده بسیار حایز اهمیت می‌باشد. بحث قابلیت اطمینان نخستین بار در جنگ جهانی دوم در حوزه بالا رفتن اطمینان تجهیزات نظامی مطرح شد. پس از آن این مبحث وارد سایر زمینه ها شد. تئوری قابلیت اطمینان مطرح و روشهای ارزیابی آن، تحلیلی و شبیه سازی، توسط بسیاری از محققان در طی

سالهای متمادی مطرح و در حوزه‌های مختلف مورد کاربرد قرار گرفته شد. قابلیت اطمینان کلاسیک مبتنی بر اطلاعات دقیـق بـود، در حالیکه عدم قطعیت یا عدم دقت (ابهام) در داده‌ها امری ذاتی و فراگیر در بسـیاری از زمینـه‌هـای علمـی همچـون اقتصـاد، مهندسـی، محیط، علوم اجتماعی، علوم پزشکی، مدیریت کسب و کار است. داده‌های غیر قطعی ممکن است به دلیل تصادفی بودن، ناکـافی بـودن اطلاعات، محدودیت های ابزار اندازه گیری، داده‌های به روز نشده و غیره باشد. به دلیل اهمیت این مساله تکنیک‌ها و روشهای مختلفی همچون تئوری احتمالات، تئوری مجموعه‌های فازی، تئوری مجموعه مبهم برای مدلسازی داده‌هـای غیـر قطعـی معرفـی شـده اسـت. متناسب نمودن روشهای کلاسیک با شرایط ابهام امری ضروری بود که منجر به ورود مبحث فازی به قابلیت اطمینان شد.

[18] N. D. Mamaghani, F. Mousavi, F. Hakamizadeh, and M. Sadeghi, "Proposed combined framework of SOA and RUP," in *Information Sciences and Interaction Sciences (ICIS), 2010 3rd International Conference on*, 2010, pp. 346-351.

Service oriented architecture (SOA) is a set of distributed services with minimum independency that interoperate for defined activities to meet business requirements. One of the research priorities in the field of SOA is finding design and development methodology that consider all principles in this architecture and causes effective and efficient application of this architecture. Rational Unified Process (RUP) methodology can satisfy this need by including defined and organized processes and also having a general framework and format of software systems production processes. In This article, RUP methodology is reviewed, first. Then RUP properties for developing SOA are studied and then mapping between RUP activities and RUP for SOA activities is established. By Using this mapping and concepts extracted for each phase of RUP for SOA, components in each layer of SOA are identified through implementation by RUP and presented in the form of framework.

[۱۹] معصومه صادقی، نسرین دسترنج ممقانی، علی شریفی، فریبرز موسوی، "ارائه چارچوبی برای تعامل پذیری سـازمانی بـا بهـره گیری از روش آنتروی شانون"، پانزدهمین کنفرانس بین المللی سالانه انجمن کامپیوتر ایران ، اسفند ماه ۸۸.

هدف از این چارچوب، توسعه و بهبود تعامل پذیری میان سازمان‌ها در زمینه ارائه خدمات الکترونیکی به یکدیگر اسـت. بـدین منظـور، چارچوب‌های مختلف تعامل پذیری سازمانی مورد بررسی قرار گرفته مفاهیم کلیدی موجود در آنها توضیح داده شده اسـت. سـپس، بـا استفاده از روش تحلیل آنتروپی شانون به رتبه بندی و تعیین اهمیت ابعاد چارچوب پیشـنهادی پرداختـه شـده اسـت. بـدین ترتیـب، سطوح تعامل پذیری چارچوب پیشنهادی معرفی گردیده‌اند. در نهایت، ویژگی هر سطح به همراه مؤلفه‌ها و موضوعات مرتبط با هر یـک از ابعاد ارائه شده است.

[۲۰] فریبرز موسوی مدنی، حکیمه یونسیان، "ارائه مدل مفهومی فرآینـدهای مـدیریت دانـش در سـازمان هـای تحقیـق و توسـعه"، مجموعه مقالات دومین کنفرانس ملی مدیریت دانش، بهمن ماه ۸۸.

[21] F. Zandi, F. Mousavi Madani, “The evaluation of IT investments based on fuzzy utility functions”, in *Proceedings of 3rd International Conference on Risk Management & Global e-Business*, Korea, Aug. 10-12, 2009.

In this research, a new method is proposed for the evaluation and selection of IT projects investments with considering the effect of uncertainty and risk in the IT investment decisions, Real option theory is used in this proposed method. For this purpose, after determining IT project, the

real option and risk scores are calculated in the fuzzy environment for them. Then, the best project is selected based on these attributes.

[22] J. Mirzaei and F. M. Madani, "Proposing a Conceptual Readiness Assessment Model of MIS/IS Deployment in Manufacturing Companies (A Case Study Conducted on the Applications of the Suggested Model in MehrCamPars Co. 1)," in *Information, Process, and Knowledge Management, (eKNOW'09), International Conference on*, 2009, pp. 141-146.

In order to, proliferate capabilities of Information Systems as a managerial leverage and a means of decision making, organizations need the support of software, hardware and human-ware infrastructures. Without such support, implementation efforts may adversely suffer from excessive development costs, delays or may even fail before completion. Hence, readiness assessment studies and exploration of prerequisite conditions play a vital role in successful MIS deployment. Although studies have revealed that IT project risks are mostly attributed to non-technical aspects, most of the available assessment models rely on technical dimensions and usually works for a specific platform or software solution. Also, some assessment models monitor project success after the implementation phase has been settled down. In this paper we propose a generic conceptual model for readiness assessment comprised of total of 18 factors. These factors are verified by field research through factor analysis technique. Our proposed model incorporates cultural, structural, process-based, infrastructural and managerial dimensions in a comprehensive and integrated fashion. The model was tested using the results obtained by the case study conducted on an auto parts manufacturing company (MehrCamPars Co.).

[23] F. Mousavi Madani, F. Zandi, S. Tarverdizadeh, "Service Oriented Approach for Enabling Agility in Enterprise Architecture", in *IADIS 2009 International Conference Information Systems*, Spain, Feb. 2009.

[24] F. Mousavi Madani, "Proposing a Conceptual Model of Knowledge Management Process in Dynamic Virtual Organizations", in *ICKM 2009 International Conference on Knowledge Management*, Dubai, Jan. 28-30, 2009.

[25] F. Mousavi Madani, H. Younesian, "Proposing a Conceptual Model of Knowledge Management Process Model in Research and Development Organizations", in *International Conference on Innovations in Redefining Business Horizons (IIRB 2008)*, Ghaziabad, India, Dec. 2008.

Organizations and researchers have turned their attention to knowledge management in the recent past. Due to rapidly changing nature of today societies, creativity and innovation are two important factors that help modern organizations to survive. So, research organizations and research and development (R&D) units can create competitive advantage, since they are the focal points of creativity. In this paper, firstly we try to point to special factors of research and development organizations that distinct them from other organizations. Then, after classifying these factors into three groups of content, context and co-structure factors, a knowledge management model is proposed for those research and development organizations which have decentralized and matrix architecture.

[26] F. Mousavi Madani, I. Bimar, “Proposing a Wireless PKI Model Optimized for M-Commerce Applications”, in *ISC Turkey Conference Proceedings*, Turkey, Dec. 2008.

The rapid advances in wireless mobile communication technology and the growth of e-commerce applications have naturally led to the development of e-commerce services on wireless medium through mobile phones. As more mobile devices are developed, security issues of crucial importance to the wired environment are resurfacing and creating a similar degree of impact. PKI which assures security issues in wired networks has difficulties to be implemented in wireless medium due to the limited performance of mobile phone such as less memory and less powerful CPU. Therefore a wireless PKI customized to mobile phone is needed. In this paper we present a wireless PKI for mobile phone based on the work presented in Ref [1].

[27] Mousavi Madani, A. Ghavamifar, “Knowledge Management Model in Dynamic Virtual Organization”, in 6th *International Management Conference*, Dec. 2008.

Knowledge management (KM) and virtual organizing (VO) are inherent elements and critical themes in today’s business environment and commonly cited sources of competitive advantage. A VO can be regarded as a typical knowledge organization that is most radical form to realize the customer or task-oriented integration of information and knowledge within a temporal and fluid configuration. A dynamic VO is one of well-defined categories of VOs that is understood as a temporary coalition of geographically dispersed individuals, groups, enterprise units or entire organizations that pool resources, facilities, and information to achieve common business objectives so the basic premise of DVOs is how managed knowledge between entities. The purpose of this paper is to discuss and compare different KM models in organization and identify the best processes of DVO’s entities knowledge. This paper’s contribution is proposing a novel conceptual model of KM process in DVOs. Finally, some conclusions of the work performed so far are presented.

[۲۸] صادق عباسی شاهکوه، حمیدرضا اخوان مختارانی، سید رضا احسانی، فریبرز موسوی مدنی، "الگوریتم مسیریابی در حفاظت اشتراکی برای شبکه های انتقال نوری"، مجموعه مقالات شانزدهمین کنفرانس مهندسی برق، خرداد ۱۳۸۷.

در یک شبکه اتصال گرا (سوئیچینگ مداری) نظیر شبکه انتقال نوری، حفاظت اشتراکی ضمن به کارگیری بهینه منابع شبکه، همانند حفاظت اختصاصی سطح حفاظتی یکسانی در برابر خرابی‌های مسیر منفرد فراهم می‌کند. این مقاله الزامات حفاظتی مسیر و الگوریتم مسیریابی ابتکاری برای تدارک حفاظت اشتراکی را مورد بررسی قرار می‌دهد.

[۲۹] صادق عباسی شاهکوه، ولی اله قربانی، سید رضا احسانی، فریبرز موسوی مدنی، "مشخصات سطح خدمات و فرصت‌های ایجاد ارزش افزوده در شبکه‌های نوری"، مجموعه مقالات شانزدهمین کنفرانس مهندسی برق، خرداد ماه ۱۳۸۷.

از آنجاییکه شبکه‌های نوری به دلیل توانایی در ارائه پهنای باند وسیع به خصوص در شبکه‌های زیر ساخت به طور گسترده‌ای به کار می‌روند، تعیین مشخصات سرویس در توافق نامه‌های سطح خدمات (SLA) متناسب با سطوح کیفیت مورد انتظار، نوع مشتری‌ها و نوع خدمات اهمیت پیدا می‌کند. مشخصات سرویس علاوه برپارامترهای فنی، می‌تواند شامل پارامترهای غیر فنی هم باشد. این مقاله به مشخصات سطح خدمات (SLA) اعم از پارامترهای فنی و غیرفنی در شبکه‌های نوری می‌پردازد. باید توجه داشت که مشخصات

مختلف، هزینه‌های متفاوتی دارند که لازم است در تعرفه‌ها مورد ملاحظه قرار گیرند. این تفاوت‌ها فرصت هایی را برای اپراتورها فـراهم می‌کنند تا ارزش افزوده ایجاد کنند.

[۳۰] فرامک زنـدی، فریبـرز موسـوی مـدنی، آزاده نـوروزی، "ارزیـابی ریسـک سـرمایه‌گـذاری‌هـای فنـاوری اطلاعـات بـا اسـتفاده از تحلیل Real Options"، همایش مدیریت پروژه فناوری اطلاعات، ۲۶ و ۲۷ خرداد ماه ۱۳۸۷.

به طور سنتی مدیران IT از روش های کلاسیک تحلیل سرمایه گـذاری ماننـد ارزش فعلـی خـالص (NPV) بـرای انتخـاب پـروژه هـا استفاده می کنند. چارچوب های کلاسیک تصمیم گیری برای انتخاب پروژه های IT از مقادیر مشخص و ایستا برای تخمین هزینه هـا و منافع پروژه استفاده می کنند و در نتیجه تأثیر عدم قطعیت به طور کلی نادیده انگاشته می شود. با توجه به نوآوریهـای روزافـزون در حوزه IT اهمیت دخیل کردن عدم قطعیت در تصمیم گیری های سرمایه گذاریهای این فناوری آشکار می گردد. هـدف ایـن پـژوهش معرفی تحلیل Real Options به عنوان تکنیکی برتر برای تصمیم گیری در سرمایه گـذاری و انتخـاب پـروژه هـای فنـاوری اطلاعـات است. این روش تکنیکی نوین برای ارزش یابی سرمایه گذاری است که از یک طرف محدویت های موجود در روشهای قبلـی را نـدارد و از طرف دیگر دارای انعطاف بالایی است که امکان استفاده از انتخاب هایی را پیش روی مدیریت سـرمایه گـذاری قـرار مـی‌دهـد تـا بـا تحلیل ریسک، سرمایهگذاری در پروژه های IT به ظاهر نابازده را به سرمایه گذاریهای مناسب و سود آور تبدیل و از تمامی پتانسیلهای موجود در منافع این گونه پروژه ها استفاده نماید. در این مقاله ابتدا این روش را معرفی و سپس مهمترین ریسک‌های سرمایه گذاریهای IT شناسایی و بهترین گزینه ها برای هریک از ریسک‌ها معرفی میشود.

[31] F. Mousavi Madani, A. Ghavamifar and L. Beig, “Knowledge Management Model in Dynamic Virtual Organizations”, in 6th *International Management Conference*, Iran, Tehran, Dec. 25-27, 2007.

Knowledge management (KM) and virtual organizing (VO) are inherent elements and critical themes in today’s business environment and commonly cited sources of competitive advantage. A VO can be regarded as a typical knowledge organization that is most radical form to realize the customer or task-oriented integration of information and knowledge within a temporal and fluid configuration. A dynamic VO is one of well-defined categories of VOs that is understood as a temporary coalition of geographically dispersed individuals, groups, enterprise units or entire organizations that pool resources, facilities, and information to achieve common business objectives so the basic premise of DVOs is how managed knowledge between entities. The purpose of this paper is to discuss and compare different KM models in organization and identify the best processes of DVO’s entities knowledge. This paper’s contribution is proposing a novel conceptual model of KM process in DVOs. Finally, some conclusions of the work performed so far are presented.

[۳۲] فرامک زندی، فریبرز موسوی مدنی، معصومه نوروزی، "بررسی و انتخاب بهتـرین الگوهـای کـاربرد فنـاوری اطلاعـات در فرآینـد آموزشی مدارس با استفاده از تکنیکهای تصمیم‌گیری"، چکیده مقالات چهارمین کنفرانس بین المللی مدیریت فناوری اطلاعـات و ارتباطات، ۲۹ و ۳۰ بهمن ماه ۱۳۸۶.

در این مقاله، کاربردهای فناوری اطلاعات در فرآیند یاددهی-یادگیری، در آموزش و پرورش برای مقـاطع تحصـیلی عمـومی، متوسـطهٔ نظری و هنرستان مورد بررسی قرار می‌گیرد. ابتدا کاربردهای فناوری اطلاعات در فرآیند یاددهی-یادگیری در قالب ۲۳ الگوی مختلـف استخراج شده‌اند که تحت ۵ رویکرد کلی دسته‌بندی گردیده‌اند. سپس، این الگوها توسـط کسـب نظـر خبرگـان فنـاوری اطلاعـات در

آموزش و پرورش، بر اساس ۱۰ شاخص مختلف برای سه مقطع تحصیلی ذکر شده ارزیابی گردیده و سپس با استفاده از روش تصمیم گیری گروهی TOPSIS و Fuzzy LINMAP داده‌های به دست آمده جهت رتبه‌بندی الگوها مورد تجزیه و تحلیل قرار گرفته‌اند.

[۳۳] فریبرز موسوی مدنی، رضا سمیع زاده، صدیقه رضاییان فردویی، "نقش مدیریت ارتباط با مشتری (e-CRM) در گردشگری ایران"، مجموعه مقالات کنفرانس ملی ارتباط با مشتری، دانشگاه تربیت مدرس، دی ماه ۱۳۸۶.

شرکتهای امروزی از طریق تجزیه و تحلیل چرخه زندگی مشتری به افزایش ارزش مشتری دست یافته اند. ابزارها و فناوریهای انبار داده، داده کاوی و دیگر تکنیک های مدیریت ارتباط با مشتری، روشهایی هستند که فرصتهای جدیدی را برای تجارت فراهم کرده اند. در واقع دیدگاه محصول محوری جای خود را به مشتری محوری داده است. بنابراین، با جمع آوری داده های مربوط به مشتری و تصمیم گیری براساس الگوهای استخراج شده از روابط پنهان میان داده ها به وسیله ابزار داده کاوی، می توان به خواسته مشتری محوری خود جامه عمل پوشاند. دنیای امروز، دنیای تحولات سریع و گسترده در تمام ابعاد است که این تحولات در صنعت جهانگردی که گسترده ترین صنعت خدماتی است نیز مشخص می باشد. تردیدی نیست که همه کشورهای جهان در رقابتی تنگاتنگ در پی بهره گیری از مزایای اقتصادی، اجتماعی، فرهنگی و... به ویژه دریافت سهم بیشتری از درآمد و بالابردن سطح اشتغال ناشی از بهینه سازی این صنعت خدماتی در کشورهای متبوع خود هستند. از همین رو با نگاهی جستجوگر در می یابیم که تلاش کشورها بر دو زمینه رشد و پایداری استوار است.به دیگر بیان این دو مساله کانون انتظاری است که همه از جمله ما از نظر اقتصادی ،اجتماعی و فرهنگی از جهانگردی داریم. اما این باور نیز وجود دارد که موفقیت های جهانگردی را نمی توان تنها به اتکای اعداد و ارقام سنجید، بلکه باید آن را باتوجه به بهبود کیفیت زندگی و حفظ فیزیکی محیط ارزیابی کرد. بی تردید مسائل مربوط به بهبود کیفیت ،که آینده جهانگردی در گرو آن است ،در کانون و قلب پایداری قرار دارد. بهبود کیفیت می بایست در همه ی عرصه ها و ارکان و اجزای تشکیل دهنده جهانگردی مانند بهبود کیفیت حمل ونقل، میهمان پذیری و میهمان داری، محل اقامت، ... ومحصولات و خدمات قابل ارائه ایجاد شود. یکی از ابزار بهبود کیفیت در این ابعاد، استفاده از فناوری اطلاعات مبتنی بر رویکردهای مشتری گرایی و مشتری مداری می باشد که در این تحقیق قصد داریم پس از مروری بر تعاریف گردشگری، مدیریت گردشگری، بازاریابی گردشگری،گردشگری الکترونیکی و ... به نقش مدیریت ارتباط با مشتری با کمک ابزار و فناوری های اطلاعاتی جدید در گردشگری مدرن و الکترونیکی بپردازیم زیرا با توجه به اهمیت نقش مشتری مداری در امر بازاریابی خدمات، بویژه در صنعت گردشگری، عدم وجود اصل مشتری مداری که یکی از مهمترین شاخص های بازاریابی در نظام گردشگری است، مهمترین ضعف گردشگری ایران بویژه در آژانس های مسافرتی به شمار می آید. ارتباط با گردشگران و استمرار این ارتباط که یکی از اصول مهم بازاریابی در جهان امروز است که در میان نگاه ها و شیوه های سنتی بازاریابی ایرانی نادیده گرفته می شوند. مدیریت ارتباط با مشتری موضوع گسترده ای می باشد که بسیاری از بازاریابان توریسم به آن علاقه مند می باشند. یکی از اهداف پروژه قرار دادن مفهوم e-CRM در حوزه توریسم الکترونیکی می باشد. از طریق، ترکیب این دو حوزه، فرایندهای CRM در توریسم تعریف شده اند. از طرفی، مدیریت ارتباط با مشتری بخصوص در گردشگری الکترونیکی نقش کلیدی ایفا می‌کند. گردشگری الکترونیکی نیز در مسیر افزایش بکارگیری ICT در جهت پشتیبانی از خدمات صنعت توریسم، در تمام ابعاد روز به روز بر اهمیتش افزوده می شود به طوری که پیش بینی می شود تا سال ۲۰۱۰ درصد چشمگیری از خدمات گردشگری به شکل الکترونیکی و بر مبنای اینترنت و وب ارائه شود.

[۳۴] محمد علی صنیعی منفرد، فرید خوش الحان، فریبرز موسوی مدنی، صدیقه رضاییان فردویی، "توسعهٔ یک مدل مفهومی جدید برای طراحی سیستمهای مدیریت ارتباط با مشتری CRM"، فصلنامه علمی پژوهشی مدیریت فردا، پاییز ۱۳۸۶.

سیستم‌های مدیریت ارتباط با مشتری (CRM) علیرغم توجه زیادی که طی سالهای اخیر به خود جلب نموده‌اند و اهمیتی که در ساختارهای مبتنی بر فناوری اطلاعات دارند از نظر طراحی و پیاده سازی وضعیتی نابسامان، دلبخواه و غیر سیستماتیک دارند و به همین دلیل به کارگیری مؤثر این فناوری با مشکلات زیادی مواجه است. ما در این مقاله، ادبیات موضوعی در زمینه طراحی سیستم مدیریت ارتباط با مشتری را مرور کرده مدل جدیدی را برای طراحی مفهومی سیستم CRM ارائه می‌کنیم. مدل ما اگر چه از

خصوصیات مشترک مدل‌های مطرح استفاده می‌کند ولی مراحل طراحی یک سیستم را به صورت سیستماتیک نشان خواهد داد. این مدل نقطه شروع خوبی را برای سازمانهای پیشرویی که به دنبال طراحی و پیاده سازی سیستم‌های مدیریت ارتباط با مشتری هستند ارائه می‌کند.

[۳۵] فرامک زندی، فریبرز موسوی مدنی، معصومه نوروزی، "مقایسهٔ دو روش LINMAP گروهی فازی و TOPSIS گروهی در رتبه بندی روش‌های مختلف کاربرد فناوری اطلاعات در مدارس"، چکیده مقالات اولین کنفرانس بین المللی تحقیق در عملیات، دانشگاه صنعتی شریف، مهرماه ۱۳۸۶.

امروزه از تکنیک های تصمیم گیری در بسیاری از مسائل روزمره می توان استفاده نمود. در این مقاله، ضمن بررسی کلی تکنیک های تصمیم گیری که برای رتبه بندی گزینه هاستفاده می شود، دو تکنیک ویژه از گروه تصمیم گیری های چند شاخصه یعنی تکنیک LINMAP فازی گروهی و تکنیک TOPSIS گروهی، مورد بررسی قرار گرفته و از آنها برای رتبه بندی ۲۳ الگوی مرتبط با کاربرد فناوری اطلاعات در فرایند یاددهی- یادگیری مدارس در سه دورهٔ عمومی، متوسطهٔ نظری و هنرستان استفاده می شود. سپس نتایج رتبه بندی های به دست آمده، با استفاده از نظر متخصصین مورد تجزیه و تحلیل قرار گرفته و از میان آنها، رتبه بندی های مناسب نهایی انتخاب می شوند. در انتها، نتایج به دست آمده از لحاظ نزدیکی دو روش مذکور، مورد تحلیل قرار می گیرند.

[36] F. Mousavi Madani, A. Ghavamifar and L. Beig, "Proposing a Model for Knowledge Management Process in Organizations," in *ISMOT'07 Conference Proceedings*, China, June 2007.

[37] F. Mousavi Madani, A. Ghavamifar and L. Beig, "The Comparison of Different Knowledge Management Process Models in Organizations," in *ISMOT'07 Conference Proceedings*, China, June 2007.

Knowledge Management (KM) has become a central theme in today's business environment and a commonly cited source of competitive advantage. Accordingly, there are many possible approaches to research on KM. The approach selected for this research is to look at the processes taking place within KM with the goal of developing a representation that is simultaneously both simple and comprehensive enough. The paper will be started by an overview of KM and related subjects. The examination of the existing KM processes in organizations presented by different researchers will be the focus of the next section. In the last section a comparison of the studied KM process models will be presented.

[38] F. Mousavi Madani and M. Memari, "A novel and optimized product recommendation method in ecommerce," in 5th *International Symposium on Knowledge, Economy and Management*, Turkey, Nov. 5-7, 2006.

The rapid growth of e-commerce has caused product overload where customers on the Web are no longer able to effectively choose the products they are exposed to. Developing an intelligent recommendation system is proposed to overcome the problem of overloaded product's information provided by the e-commerce enterprises. This paper proposes a new hybrid recommendation scheme, called NOVEL, based on CF, WebCF-AR and WebCF-PT to enhance the recommendation quality and the system performance of current recommender systems. The NOVEL method, showing a minimal qualitative improvement of 50% compared to the present methods of product suggestion, has advanced tremendously the existing ecommerce product suggestions employing costumer navigational and behavioral algorithms.

[39] F. Mousavi Madani and K. Kikuchi, "Feasibility of 1 Tb/s-10,000 km WDM dispersion-managed transmission system," in *Proc. Optoelectron. and Comm. Conf. (OECC'98)*, Chiba, Japan, Jul. 12-16, 1998, paper 14A3-2. (Oral presentation)

The limitations on the attainable capacity of 5 Gb/s-10,000 km WDM transmission system is characterized. We demonstrate that up to 1 Tb/s transmission capacity can be achieved without appealing to the elaborative in-line dispersion slope compensation scheme by employing optimum RZ pulse, low-noise optical amplifier and low nonlinear coefficient fiber.

[40] F. Mousavi Madani and K. Kikuchi, "Design approach for ultra-long WDM dispersion managed transmission system," in *Proc. Optoelectron. and Comm. Conf. (OECC'97)*, Seoul, Korea, Jul. 8-11, 1997, paper 10A3-4. (Oral presentation)

A novel design approach for ultra-long dispersion managed WDM transmission system is presented. Based on the proposed method, design examples for 2.5 Gb/s- and 5 Gb/s-10,000 km WDM systems are demonstrated.