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ABSTRACT

Creation of business plans helps entrepreneurs in managing identification of business opportunities and committing necessary resources for process evolution. Applying patterns in business plan creation facilitates the identification of effective solutions that were adopted in the past and may provide a basis for adopting similar solutions in the future within given business context. The article presents the system design of an information portal for business plan co-creation based on patterns. The portal is going to provide start-up and entrepreneurs with ready-to-modify business plan patterns in order to help them in development of effective and efficient business plans. It will facilitate entrepreneurs in co-experimenting and co-learning more frequently and faster. Moreover, the paper focuses on the software architecture of the pattern based portal and explains the functionality of its modules, namely the pattern designer, pattern repository services and agent-based pattern implementers. It explains their role for business process co-creation, storing and managing patterns described formally, and selecting patterns best suited for specific business case. Thus, innovative entrepreneurs will be guided by the portal in co-writing winning business plans and staying competitive in the present day dynamic globalized environment.

Pattern based portal, business plan, co-experimenting and co-learning, business co-creation, entrepreneurship, business information systems

1. INTRODUCTION

Globalization, information society and irregular development of nowadays capitalism impose great challenges to entrepreneurs and business investors. Co-creation creates a new dynamic to the producer/customer relationship by engaging customers directly in the production or distribution of value. Huge investment in modern, cutting edge technologies opens new scientific research areas and creates naturally more business opportunities at global market level, however, at the same time it brings more concurrence to the existing businesses. Therefore, in order to survive in such an epoch of accelerating competition and strong restrictions imposed by the today's markets, companies have to become more and more innovative and, very often, to redesign their business plans and processes following new and flexible models and strategies.[1-3]

Business plan has always been of critical importance for organizations with new or already started businesses. It is composed by a set of written documents having strong impact over all functional business areas and determining future values of key performance indicators. Serving as a roadmap for the business, a business plan concerns all important issues starting from the mission statement and strategy and going through operations, management, marketing and others.[4,5] Naturally, business plans may vary according specific business domain, scope of business, or target audience,[6] however, they usually stick to regularized business processes.

In last decade, usage of patterns for developing business plans has turned into a trend, as far as patterns help making business processes more regular.[7,8] On the other side, patterns offer good and already proven solutions to common problems within specific context. The present paper aims at revealing the system model of a portal for business planning based on patterns being under construction at the Chair of Software Engineering, Sofia University, Bulgaria. Authors try to present the basic functionality of the pattern-based portal in its relationship to value co-creation opportunities. While researchers are aware of conceptual models of business plan patterns and their declarative documenting and graphical

presentation, successful entrepreneurs act as pattern analysts and co-designers and co-create valuable and extendible patterns for business planning indexed by appropriate keywords. Such patterns for business start-up and grow companies plans and strategic business planning are going to be stored into a reusable business pattern based repository and, next, to be applied in single or composition mode for practical co-experiments with business plan constructing closer to reality. Our team has focused on the engagement and participation of academic and business community and to contribute in co-creation of business plan patterns data base contend. We developed a portal software architecture that identifies business plan constructs that are critical for the co-create content and usage of the plan. The portal will allow young entrepreneurs to start fast and to succeed or fail fast, to co-experience and to co-learn. They can find or co-create pattern for every best or worst entrepreneurs practice. Thus, innovative entrepreneurs will be guided by the portal in co-writing winning business plans and staying competitive in modern dynamic times.

2. MOTIVATION

Nowadays, business communities have realized the role of open, incremental and disruptive innovation by sharing a common understanding about the possibility of both, adding more value to existing businesses and opening wider horizons for new entrepreneurial endeavors. Moreover, companies have recognized the customers of their products and services not only as the 'end users' but also as the key stakeholders participating in the overall business workflow for co-creation and innovation of products or services.[9]

Creation of business plans and their structuring and operation can be easy and faster co-exercised by means of specialized software tools.[10,11] Such tools facilitate execution of many hard tasks specific to analysis, design, verification, validation, and assessment of business plans. There are many approaches applying patterns for the organization and structuring of business plans.[12,13] Pattern-based approaches became very appealing for business engineers and entrepreneurs thanks to their regularized and structured nature. They possess the necessary descriptive power to answer important questions concerning the solution of multiple and diverse business problems within a specific context. By offering multiple advantages, patterns are able to give right answers about when and how to apply these solutions and what will be the trade-offs and benefits coming along.[3,13] Patterns provide declarative descriptions of process structure and could be also used for student entrepreneurship education,[14] for preparation of business plans, for setting business startups, consolidating good strategic directions in ongoing businesses, and/or introducing changes and dynamic adaptations to already existing businesses.[8] Methods, tools and platforms for creation and re-mastering business plans through patterns appeared to be of essential importance for entrepreneurs as far as they could facilitate creation of new startups and help also in two other aspects: first, introducing changes to ongoing businesses and, second, restructuring workflows already in use.

In today's globally connected information society we are seeing the growth and collaboration of a community of entrepreneurs, by entrepreneurs, and for entrepreneurs.[3] The value co-creation paradigm provides a new dynamic vision for business plan creation by enabling a dynamic engagement of entrepreneurs directly into the business plan pattern formation. According to the foundational premises of the S-D (service-dominant) logic, services provision is the concept of "operant resources" – the ability of users to act on others knowledge and competence resources.[15] The adoption of the pattern-driven paradigm enables unprecedented degrees of reusability and co-sharing of successful entrepreneurial experience in the process of business plan co-creation. The knowledgeable business plan writer can easily become a contributor, while the new one – a user of a specific pattern. It allows the implementation of the four fundamental value co-creation building blocks such as defined by Prahalad and Ramaswamy.[16] Fig. 1 illustrates the combination of the four building blocks: *dialog* between entrepreneurs and business plan experts, on-line *access* to the business plan patterns repository, *transparency* of the business plan writing process, and *risk-benefits* for any one of stakeholders (i.e., the so called DART value co-creation framework).

Modern system and process design supposes applying patterns everywhere – from software analysis and design to business process planning and development. Consulting last approaches for applying patterns for development of business plans, authors have found a lack of tools and platforms supporting business engineers in creation of plans and processes through patterns. This is the main reason to start conceiving an Internet portal for business planning based on patterns which could provide useful tools for co-creation and maintenance of patterns from one hand and, from the other – for searching and applying appropriate patterns by entrepreneurs for business startups or restructuring and, also, for analysis and creation of extendible business pattern catalogue.
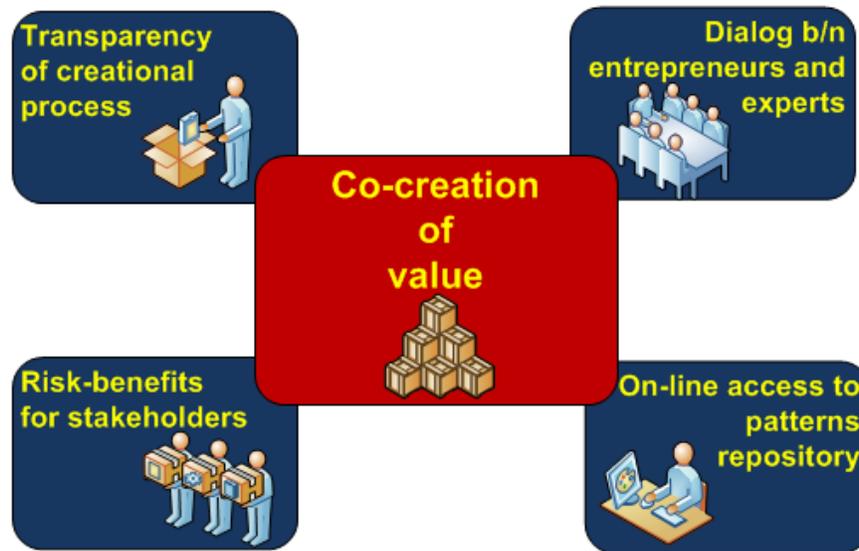
Figure 1. Implementation of the four value co-creation building blocks (DART value co-creation framework) in the case of the pattern-based business portal

Thus, our mission concerning the portal is first to do a research of conceptual models of business plan patterns and their declarative documenting and graphical presentation. Next, we have to design means for analysis and creation of extendible business pattern catalogue, which are going to be used for portal construction. Next sections describe them in the context of pattern-based business planning and the portal system architecture.

3. PATTERN-BASED APPROACH FOR BUSINESS PLAN DEVELOPMENT

The need of creating a business plan appears at a time of changes, before business stakeholders undertake actions in order to respond the changes. Business stakeholders are represented by all individuals and organizations involved into business such as founders, investors, key employees, bankers, venture capitalists and competitors.[17] All they need a business plan in cases of new startups, extending the ongoing business (organization, products or services), buying existing business, or restructuring and reengineering a business. Fig. 2 shows the stages in business plan development process.

Modern system and process design supposes applying patterns everywhere – from software analysis and design to business process planning and development. After examining all these approaches for applying patterns to the development of business plans, the authors have realized that there is a lack of tools and platforms supporting business engineers in creation of plans and processes through patterns. This was the main reason for us to start conceiving an Internet portal for business planning based on patterns which could provide useful tools for co-creation and maintenance of patterns from one hand and, from the other – for searching and applying appropriate entrepreneurial patterns for business startups or restructuring. Thus, our main objective concerning the portal was to undertake a research project focusing on the developing conceptual models of business plan patterns and their declarative documenting and graphical presentation. Next, we had to design appropriate means and tools for the analysis and creation of an extendible business pattern catalogue, which are going to be used in the process of portal construction. The next sections describe these steps within the context of pattern-based business planning and portal system architecture.
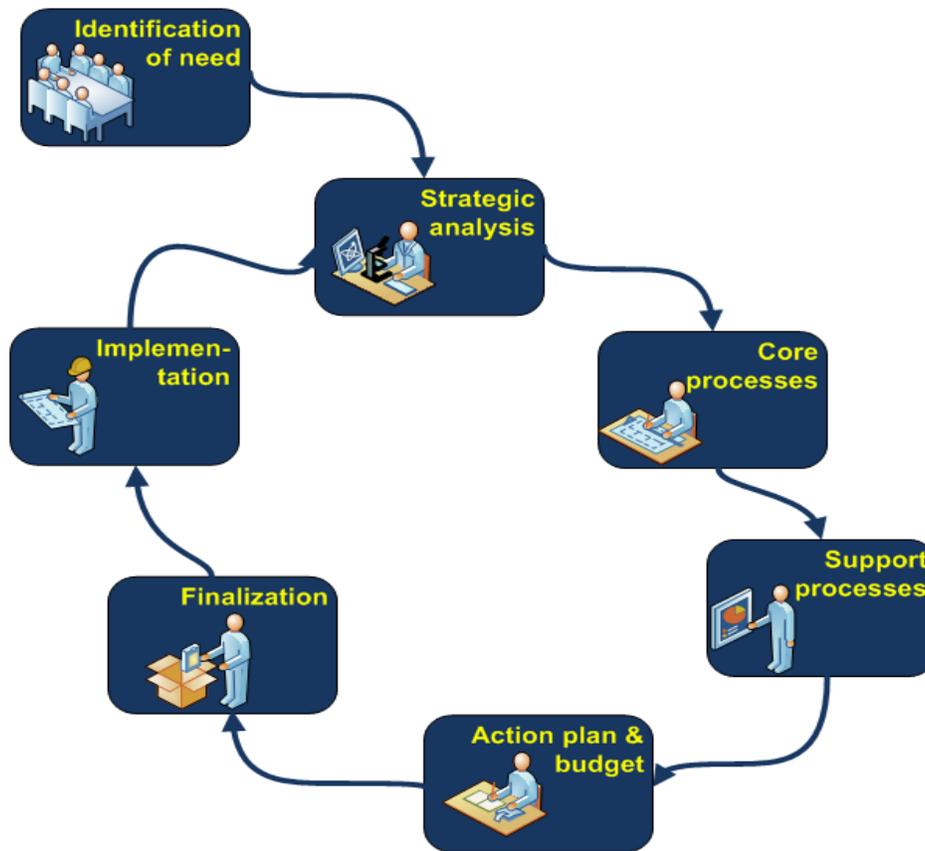
Figure 2. Stages in business plan evolution

4. PATTERN-BASED PORTAL FOR BUSINESS PLANNING

The first and very important task before starting the initial construction of the business portal for business planning is to map the overall process about creating a business plan onto the system model of the portal. A conceptual diagram of the portal architecture is shown in Fig. 3. The figure represents the main user roles, the portal applications and the servers where they reside. Business start-up patterns repository will be created, designed, and elaborated through a special software tool called Pattern Designer (or Composer). The Pattern Designer is going to provide graphical interface for pattern creation following any business start-up pattern structure defined by XML Schema, i.e. it will be driven by the pattern syntax. Moreover, it will allow specification of the pattern metadata used next for pattern search and retrieval. The pattern designer will use repository services for pattern storing, search, and retrieval. Repository services will allow access to the pattern repository. Finally, patterns are going to be used by adaptive artificial intelligence agent for pattern implementation depending on final user objectives. Thus, a start-up builder will be able to create his or her own business plan by using the instruction of the adaptive agent about how to apply the proper business pattern.

Finally, patterns are going to be used by adaptive artificial intelligence agents.[18] for pattern implementation depending on final user objectives. Thus, a start-up builder will be able to create his or her own business plan by using the instruction of the adaptive agent about how to apply the proper business pattern. In other words, the intelligent agent will act as business pattern implementation entities helping entrepreneurs to start up their business in an adaptive way conforming their needs and preferences. Therefore, intelligent agents represent autonomous modules of the simulation machine and have to be able to adapt and to learn throughout the work process.
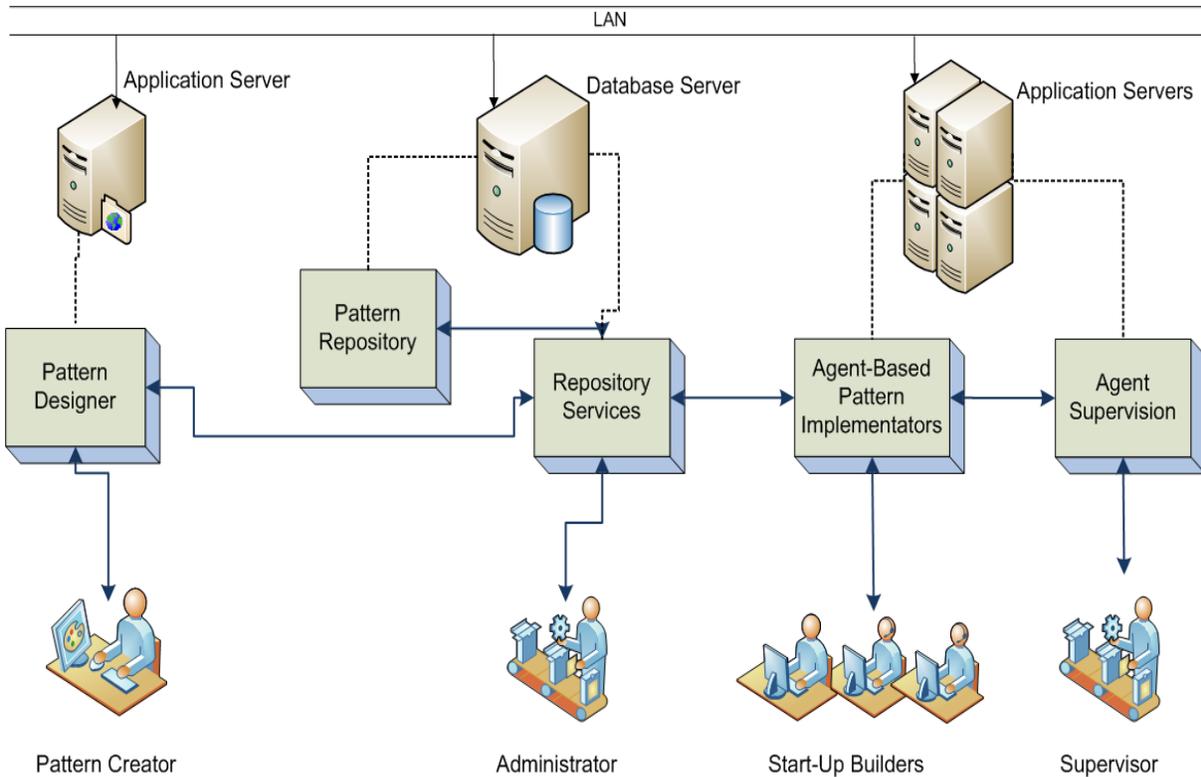
Figure 3. System architecture and roles of the pattern-based portal for business start-up

CONCLUSIONS

Providing citizens and employees with a new set of competences and empowering them with new entrepreneurial roles turned out to be in the middle of all changes in public life and knowledge-based economy. The entrepreneurship and innovation subjects are among the most important ones in the emerging EU human resource competence arsenal and will become a key component in school and university curricula. There are many initiatives that could be and have to be implemented for the education of trainers, establishing incubators in business schools and connecting them to the global network sites. The general conclusion coming out of these developments is that present employees need more than just technical competences. The need to equip employees with interdisciplinary competences, combining e-competences with entrepreneurial competences, innovativeness and creative thinking, turn out to be among the highest challenges for businesses, educational institutions and policy makers.

The construction of a pattern-based portal for business planning aims at investigating the best practices and creating the next practices, at reengineering and developing patterns for services to help small companies starting, growing and succeeding. It will facilitate new entrepreneurs in writing winning business plans and becoming more competitive right from the start. Planning is a critical stage to successfully starting, building, and running a business. After finalizing the platform development, the authors are planning to put it into practice by designing and starting practical experiments involving students in the development of business plans within a context that is close to reality, as well as by applying various business patterns.

The knowledge database of the proposed pattern-based business plan portal will serve as a proper reference manual, as a reusable local and global repository of best practices. It will help the entrepreneurial community to grow, to co-learn faster, to share and adopt business plan components by co-experimenting at every stage of their businesses. We are also

planning to continue the research and involve members of both local and global entrepreneurial communities to co-create the critical success factors of the business plan pattern portal.

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