

Algorithms for composing efficient business models

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Abstract. Solving the problems of effective business management is associated with a variety of current goals facing the same and, by implication, requires the construction of appropriate models of efficient business. The article presents two problems of doing business which, apart from their common target being an improvement of business efficiency, have different current goals. The creation or development of any business involves the construction of a specific business plan for it, including a list of those areas of business development, the implementation of which will increase its efficiency. The first problem considered in the article is related to the phased implementation of all areas of efficiency improvement in order to ultimately obtain the greatest efficiency of their realization. The second one solves the problem of increasing efficiency by partially implementing efficiency improvement directions from the initial list, taking into account certain limitations, for example, in conditions of limited company resources. For the construction of models which would meet the problems set, an efficiency criterion is substantiated and proposed in the article, and Algorithms 1 and 2 are developed which made it possible to build the efficient business models which take into account the difference in its current goals. The authors have developed a multi-stage Algorithm 1 for the generation of individual sets of areas for improvement of efficiency to be used to solve the tasks at hand. Algorithm 2 implemented at each stage of Algorithm 1 has been developed by the authors by using the Pareto optimality method but supplemented by taking into account the features and objectives of the current tasks set for the business. The use of such algorithms has made it possible to build efficient business models enabling not only to obtain an economic effect inherent to each efficiency improvement area, but also to ensure additional growth thereof driven by the properties of the developed algorithms.

Keywords: efficient business, areas for improvement of business efficiency, Algorithm 1, Pareto optimality, Algorithm 2, sets of areas for improvement of business efficiency

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Алгоритмы формирования моделей эффективного бизнеса

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Аннотация. Решение задач эффективного ведения бизнеса связано с разнообразием текущих целей, стоящих перед ним, и, как следствие, требует построения соответствующих моделей эффективного бизнеса. В статье сформулированы две задачи ведения бизнеса, которые, помимо их общей целевой установки – повышение эффективности бизнеса, имеют разные текущие цели. Для построения моделей, отвечающих поставленным задачам, в статье обоснован и предложен критерий эффективности, а также разработаны Алгоритм 1 и Алгоритм 2, позволившие построить модели ведения эффективного бизнеса, учитывающие различие его текущих целей. Авторами разработан многоэтапный Алгоритм 1 формирования отдельных наборов направлений повышения эффективности, используемых для решения поставленных задач. Алгоритм 2, реализуемый на каждом этапе Алгоритма 1, разработан авторами с применением метода оптимальности Парето, однако дополнен учетом особенностей и целей текущих задач, поставленных перед бизнесом. Использование данных алгоритмов позволило построить модели эффективного бизнеса, обеспечивающие получение экономического эффекта, не только заложенного в каждое направление повышения эффективности, но и дополнительного его прироста, обусловленного свойствами разработанных алгоритмов.

Ключевые слова: эффективный бизнес, направления повышения эффективности бизнеса, Алгоритм 1, оптимальность по Парето, Алгоритм 2, наборы направлений повышения эффективности бизнеса

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Introduction

It is well known that the goal of any business is to increase its income by identifying a variety of ways to improve business efficiency [16, 17, 19, 23], as well as building and identifying a specific business plan based on them..

The common requirements and characteristics describing any alternative way of doing business may include the following:

- the business shall be efficient. Firstly, this requirement is driven by the business development goal: it is targeted at making profits, and secondly, such requirements should be taken into account when substantiating and selecting the efficiency criterion. In the business models presented

below, the simultaneous maximization of the real economic effect and the cost savings relevant to obtaining thereof is proposed;

- business efficiency is secured by implementing certain areas for improvement of business efficiency in such business;
- to describe different alternative ways of doing business, similar (unified) parameters shall be used. Thus, in the models presented below, each area for improvement of efficiency is described by the two parameters: the potential financial result and the costs of obtaining thereof.

Notwithstanding the common goal of different ways of doing business – the assurance of business efficiency, the concrete conditions and