Influential Article Review - Towards Sustainable Competitiveness: Croatia's Approach

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This paper examines sustainability. We present insights from a highly influential paper. Here are the highlights from this paper: Throughout the current wave of regulatory reforms, several theoretical models have been proposed that call for the emergence of instruments of self-regulation under some form of state supervision as part of the demand to improve product development performances aligned with awareness of environmental needs, to help with meeting regulation and to reduce the risk of production nonconformance. "20 Keys" is one example of a mass application of a methodology for raising sustainable development and holistic approach to competitiveness in new EU member the Republic of Croatia, and therefore, the aim of this study is to observe the results of the methodology application in Croatian companies. 20 Keys is a methodology that brings an integrated set of tools aimed at increasing overall productive efficiency and quality level with simultaneous reduction of costs. As it was shown in this paper, implementation success is coincident with senior management's active role in setting the main goals for implementation, assuring that suitable methods and tools are used, allocating resources appropriately and enabling communication within the company. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.

Keywords: 20 Keys methodology, Managerial tool, Sustainable production, Lean management, Manufacturing companies

SUMMARY

- Proposition no. 1: 20 Keys methodology is the most appropriate for and provides best results in manufacturing companies.
- When viewing the results achieved by companies in 20 Keys, the processing industry has achieved average annual growth of 10.7 %, an increase in profit margins of 3.3 %, employment growth of 14.1 %, and average annual productivity growth of 6.9 %. Considering that this is a sample of 39 companies, representing 81.25 % of the total number of participants, the results are respectable. Companies from other industries were represented in smaller numbers, and it is difficult to determine the applicability of the methodology and the trend in these sectors.
- Furthermore, based on the analysis of tools that are part of individual keys, models of organization and management of project implementation, Kobayashi's descriptions of individual keys and

personal experiences of the author of this paper in introducing the methodology in Croatian companies, the conclusion is that 20 Keys methodology is best suited for companies dealing with manufacturing activities. Also, the average realized productivity growth of 6.9 % per year and the increase in profit margins of 3.3 % confirm the success of companies that have decided to apply 20 Keys. The number of analyzed enterprises operating in the manufacturing industry minimizes the variance and thus confirms this proposition.

- Proposition no. 3: Enterprises which participated in the program for a longer period and introduced a greater number of keys generate higher revenue and profit growth than the companies which participated for a shorter period.
- We discussed the dependency of results achieved by companies in the manufacturing industry on two factors—the number of implemented keys and time spent in the program. Although the research shows deviations from the claims put forward in this proposition, the following trends are clearly observable companies that participated in the program longer than 36 months have achieved average annual revenue growth of 22.4 % and companies which implemented more than 14 keys achieve average annual growth in productivity per employee of 11.4 %. Several data confirm the veracity of this proposition. First, the number of implemented keys did not reach its possible maximum in any company, and many companies failed to implement some keys. This fact is in direct conflict with the recommendation of Mr. Kobayashi that simultaneous implementation of all keys provides maximum results and synergies necessary for the growth of productivity.
- Furthermore, keys belonging to the categories of cost and speed of delivery have been implemented to a lesser extent than those from the categories of quality and, especially, motivation. This information indicates that only 46.4 % of participants had the opportunity to familiarize themselves with themes that function as the foundation of many other methodologies around the world, especially lean manufacturing—that is, topics that are directly aimed at raising the productivity of business processes.
- The results of the survey also represent an indicator of the under-utilization of the methodology.

HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation:

Dabic, M., Orac, M., & Daim, T. U. (2016). Targeting sustainable competitiveness in Croatia by implementation of "20 Keys" methodology. Journal of Innovation and Entrepreneurship, 5(1), 1–26.

This is the link to the publisher's website:
https://innovation-entrepreneurship.springeropen.com/articles/10.1186/s13731-016-0032-1

INTRODUCTION

The concept of sustainable production emerged at the United Nations Conference on Environment and Development in 1992 and is closely related to the concept of sustainable development. In 1996 "The International Organization for Standardization" introduced a series of certifications and standards in the realm of ISO 14000, which has become the reference model in the Environmental Management System (EMS) (Boiral 2007). ISO 14000 certification (ISO 14001:2004 and ISO 14004:2004 focus on environmental management systems) is intended to provide a framework for a holistic strategic approach to the organization's environmental policy, plans, and actions. The total number of certificates awarded at the end of 2000 was 22,897, compared to 14,106 at the end of December 1999, showing an incredibly significant rise of 8791. The rate by which companies are getting ISO 14000 certified has increased from 128,211 at the end of 2006 to 188,815 in 155 countries in December (Wiengarten et al. 2013, International Organization for Standardization 2008) highlighted that many governments and jurisdictions are introducing legislations to address sustainability in terms of climate change in general and product- and

process-derived pollution. The ISO 14000 standard is the most popular of a growing family of corporate self-regulatory instruments that typify an era of intense regulatory reform. Levi-Faur (2005) called it "regulatory capitalism," a new paradigm in regulatory theory characterized by the emergence of decentralized forms of regulation, an increase in delegation to autonomous agencies, and the proliferation of internal structures of governance used by corporations to ensure social responsibility. Several authors (Cockrean 2000, Clapp 2004) have also questioned the importance of ISO 14001 as an effective policy instrument, emphasizing several of its limitations. For example, it fails to take in consideration environmental performance as it does not prescribe specific targets; continuous improvement is associated with management practices and not environmental performance; it does not ensure regulatory compliance neither does it promote disclosure of information; it does not distinguish good from poor performers; and it lacks reporting requirements (Loureiro et al. 2011). From a manufacturing enterprise perspective, awareness of the global activity is essential to ensure long-term business success. To strategically work towards sustainability, it is imperative that companies define, implement, and agree on what sustainability means for them (Broman et al. 2000) and to ensure that a complete sustainability perspective, including both ecological sustainability and social sustainability, is used to guide innovation processes rather than single aspects of sustainability (Hallstedt et al. 2013).

The methodology of 20 Keys has been fully implemented in 48 companies in Croatia during the period between 2004 and 2010 and was co-financed by the Ministry of Economy, Labour, and Entrepreneurship (Ministarstvo gospodarstva, rada i poduzetništva 2004). Study results show that companies that have participated long enough in the program achieved better financial results and growth rates in comparison with the average of Croatian companies from the same industries. Paper examined changes of performance and results achieved by implementation of 20 Keys methodology, growth in revenue after implementation 20 Keys methodology with an average of Croatian companies has been compared and increase in employee's motivation as the area in which 20 Keys has been implemented has been highlighted.

CONCLUSION

The introduction of the 20 Keys methodology in Croatian enterprises was subsidized by the Ministry of Economy, Labour, and Entrepreneurship in the period from 2004 to 2008. More than 50 companies which participated in the program to increase competitiveness were granted subsidies amounting to 40 % of the cost of introducing the methodology, conducted by the license holder in the Republic of Croatia—Deloitte CE. This represents a significant government investment in the Croatian economy, and in this sense, the direction and goal of this study were determined as twofold—to establish the position of the methodology in the world by comparing it with some of the more familiar and better-known methodologies and to objectively assess results and the course of implementation in companies which participated in the program.

Comparing 20 Keys with ISO systems, six sigma, lean manufacturing, and balanced scorecard, we discovered many common tools and techniques of approach to solving business problems. The highest degree of similarity was observed between 20 Keys methodology and lean manufacturing. The degree of similarity was such that it can be concluded that these represent the same basic principles and goals enveloped in a different model of implementation and presentation. Both methodologies derive a multitude of techniques from renowned Toyota production systems and share common primary goals—productivity growth and the establishment of a culture of continuous improvement in companies.

However, when we consider the distribution of the methodology throughout the world, especially in comparison with the abovementioned methodologies, we concluded that 20 Keys is not nearly as widespread and accepted in the world like other methodologies are. A few countries like Japan, South Africa, Slovenia, and Croatia represent exceptions. Despite the relative anonymity in the world, the Ministry of Economy, Labour, and Entrepreneurship adopted the methodology as a program for raising sustainable development and holistic approach of competitiveness of Croatian companies, thereby following a similar scenario to that in the Republic Slovenia a few years earlier.

Despite the relative anonymity of the methodology in the world, our analysis has shown that companies that have participated in the program achieved higher rates of revenue growth and productivity than the average rates in the Republic of Croatia. The manufacturing industry was the most represented sector with 39 participating in the program, and the results achieved by companies in this sector clearly show that there is a correlation between participation in the program and revenue growth, as well as productivity growth—which is logical given that the methodology is intended primarily for manufacturing companies. Companies operating in the manufacturing industry recorded an average growth of 10.7 %, which compared against the average growth of 4.38 % at the national level, represents a significant improvement. Also, there is a positive correlation between the greater duration of the period spent in the program, as well as the number of implemented keys, and achieved business results.

However, the fact is that the full potential of the methodology was not utilized in the Republic of Croatia. The tools and techniques of 20 Keys were not completely transferred to Croatian companies during the period of implementation and monitoring, especially those of management costs and speed of delivery categories.

The final assessment of the actual introduction of the methodology in Croatian companies, based on the previous analysis and the data collected, is as follows: achieved results alongside under-utilization potential offered by the methodology.

APPENDIX

TABLE 1
LISTING AND DIVIDING KEYS BY FIVE MAIN CATEGORIES (DELOITTE 2004A, 2004B)

Category	Aim	20 Keys	
M	Energizing workplace	1	Cleaning and organizing to facilitate work
		2	System rationalization/goal alignment
		3	Small group activities
		10	Workplace discipline
Q	Improving quality	7	Zero monitor manufacturing/production
		9	Machinery and equipment maintenance
		11	Quality assurance
		12	Suppliers' development
		15	Skill versatility and cross training
C	Cost reduction	13	Eliminating waste
		14	Empowering employees to make improvements
		6	Kaizen of operations
		17	Efficiency control
		19	Conserving energy and materials
D	Enhancing the flow of the process/stock reduction/faster delivery	5	Quick changeover technology
		4	Reducing work-in-process (WIP)
		16	Production scheduling
		8	Coupled manufacturing/production
T	Technology development	18	Using information systems
		20	Leading technology/site technology

TABLE 2
PROFILE OF THE COMPANIES STUDIED

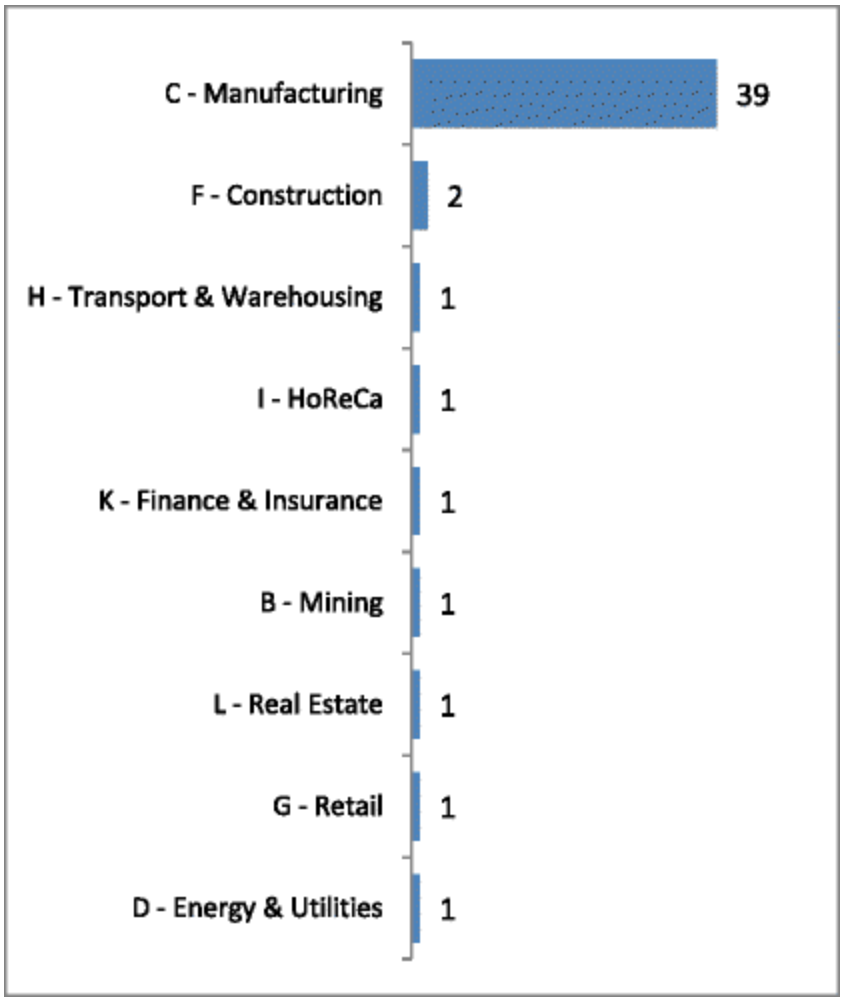


TABLE 3
COMPARISON OF GROWTH FROM 2004 TO 2008 OF TOTAL CROATIAN (DRŽAVNI ZAVOD ZA STATISTIKU 2005–2009) AND COMPANIES PARTICIPATING IN 20 KEYS

National Classification of Business Activities	2005/2004 (%)	2006/2005 (%)	2007/2006 (%)	2008/2007 (%)	CAGR 2008–2004 (%)	CAGR of program participants (%)
B—Mining and extraction	−1.2 %	10.6 %	1.4 %	−2.7 %	1.90 %	3.2 %
C—Processing industry	6.8 %	5.2 %	6.4 %	−0.7 %	4.38 %	10.7 %

FIGURE 1
THE RATIO OF LOSS-MAKING AND PROFIT-MAKING PARTICIPANTS IN THE PROGRAM

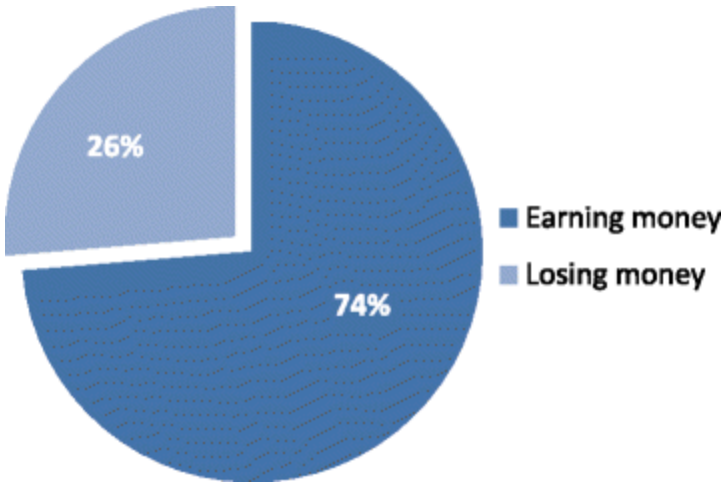


FIGURE 2
THE RATIO OF LOSS-MAKING AND PROFIT-MAKING ENTERPRISES IN THE MANUFACTURING INDUSTRY OF THE REPUBLIC OF CROATIA (HRVATSKA GOSPODARSKA KOMORA 2009)

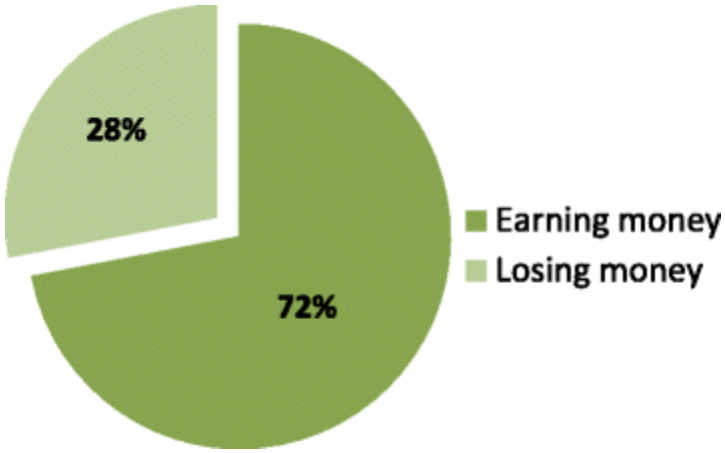


FIGURE 3
ENTERPRISE SIZE IN 20 KEYS IN CROATIA

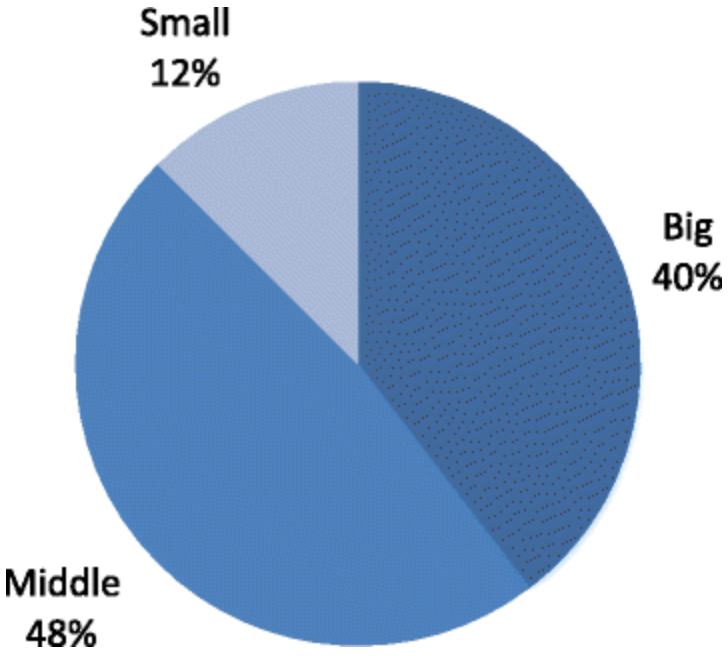


FIGURE 4
OWNERSHIP STRUCTURE OF PARTICIPATING COMPANIES

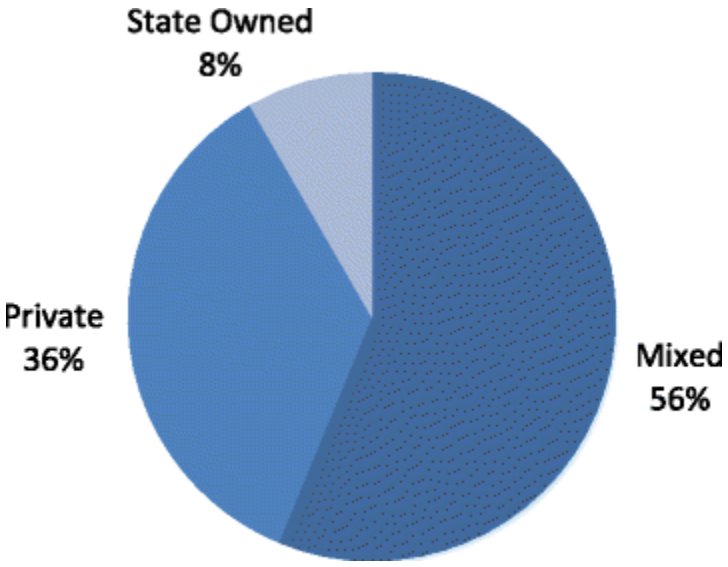


FIGURE 5
AVERAGE ANNUAL GROWTH OF INCOME (CAGR) BY MAIN NATIONAL CLASSIFICATION BUSINESS ACTIVITIES

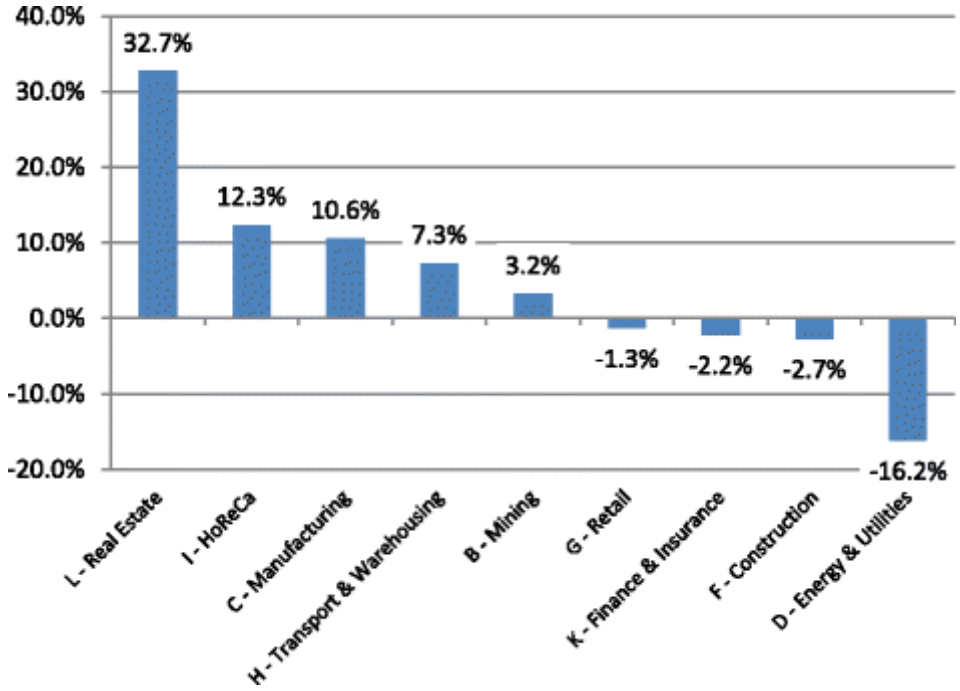


FIGURE 6
ANALYSIS OF EBIT ACCORDING TO THE NATIONAL CLASSIFICATION

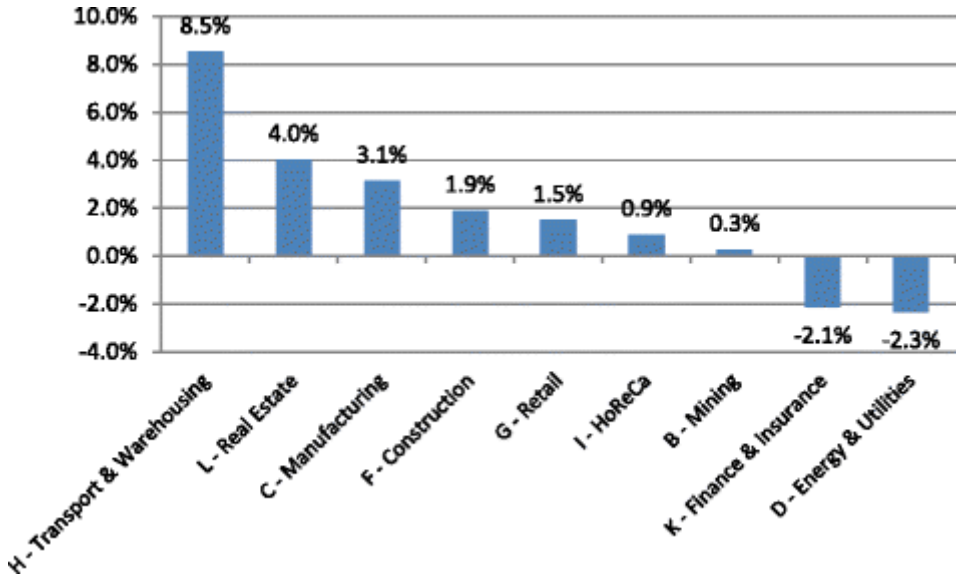


FIGURE 7
VARIATION IN FTE ACCORDING TO NATIONAL CLASSIFICATION OF BUSINESS ACTIVITIES

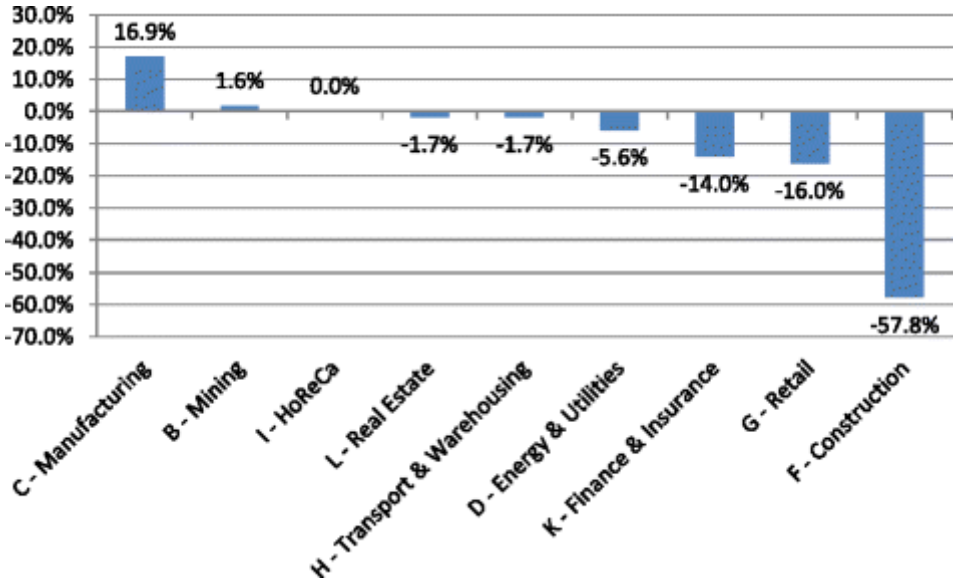


FIGURE 8
PRODUCTIVITY GROWTH PER EMPLOYEE IN THE NATIONAL CLASSIFICATION BUSINESS ACTIVITIES

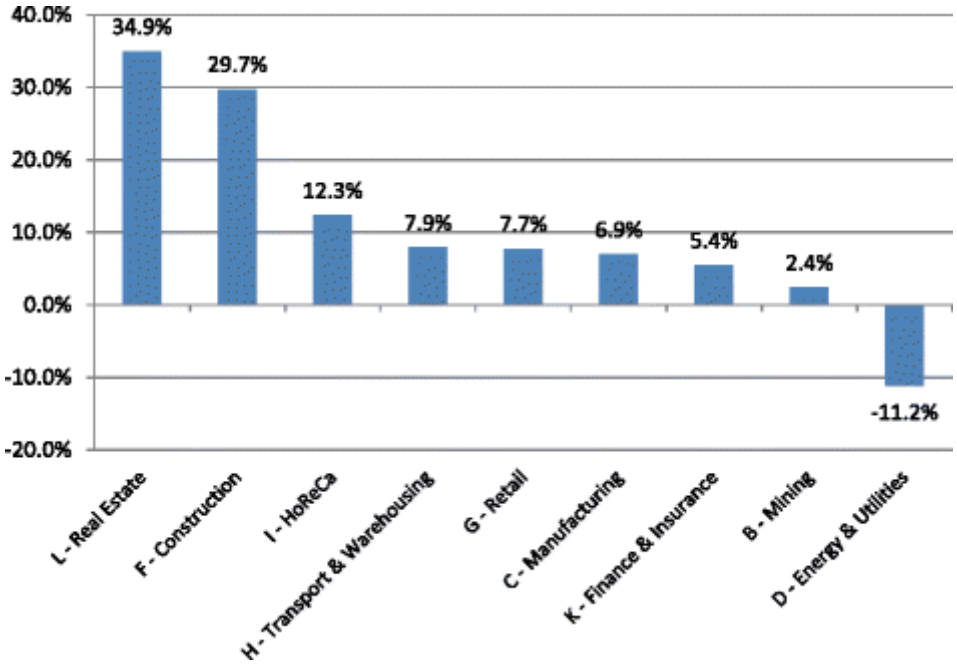


FIGURE 9
FREQUENCY OF KEYS IMPLEMENTATION (N = 48 COMPANIES)

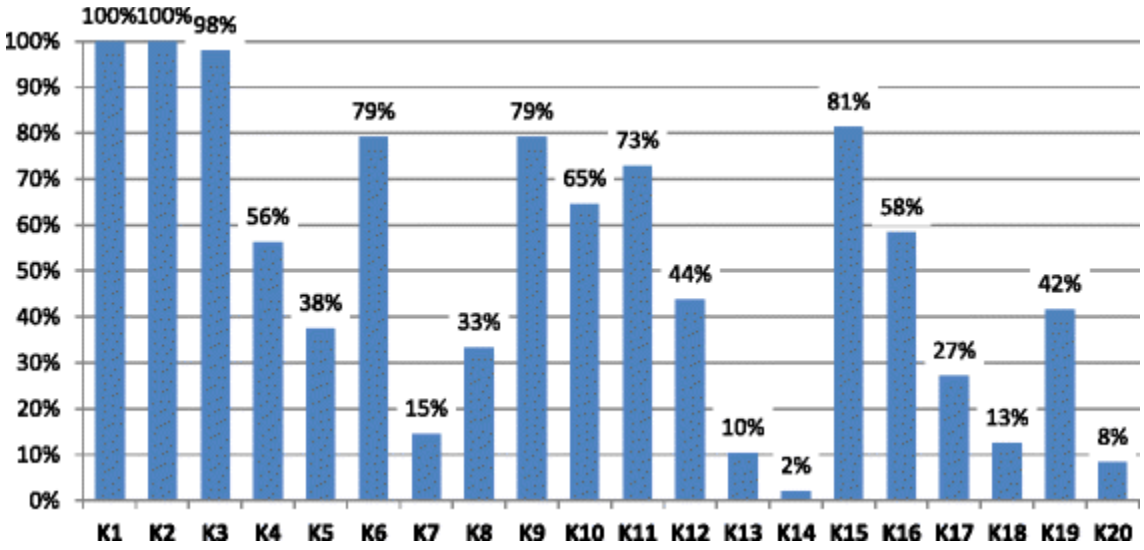


FIGURE 10
FREQUENCY OF KEY IMPLEMENTATION BY CATEGORY

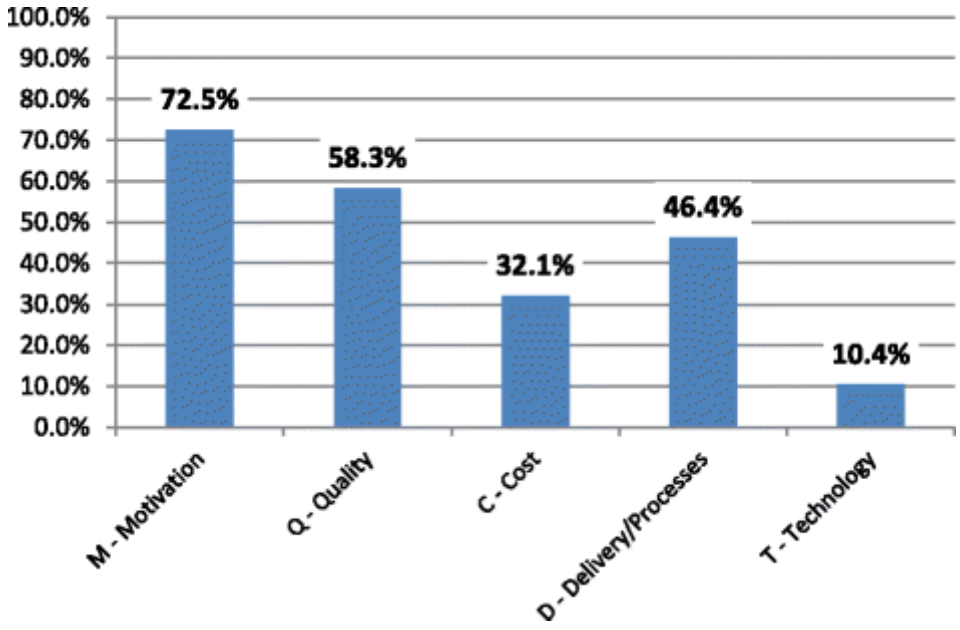


FIGURE 11
NUMBER OF ENTERPRISES IN DIFFERENT CATEGORIES ACCORDING TO THE NUMBER OF IMPLEMENTED KEYS

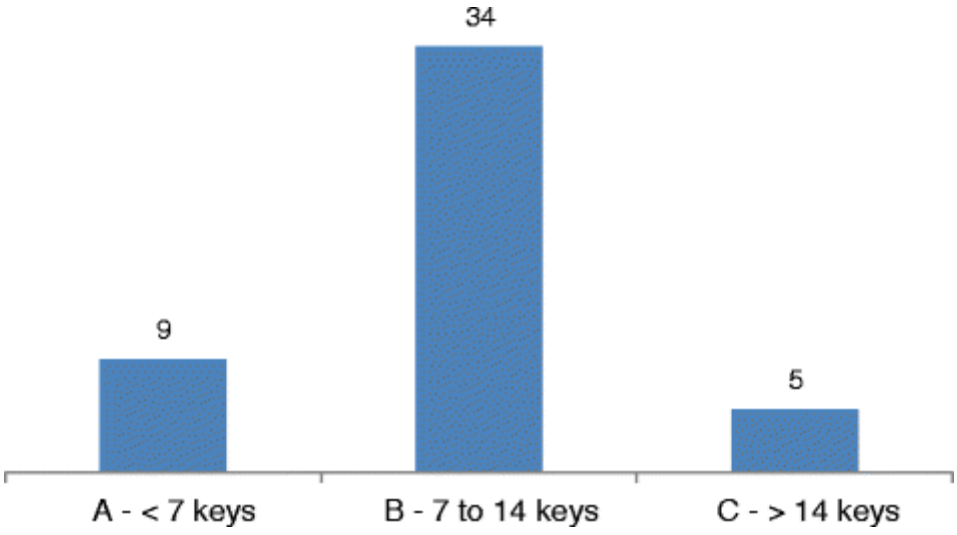


FIGURE 12
NUMBER OF COMPANIES IN DIFFERENT CATEGORIES ACCORDING TO TIME SPENT IN THE PROGRAM

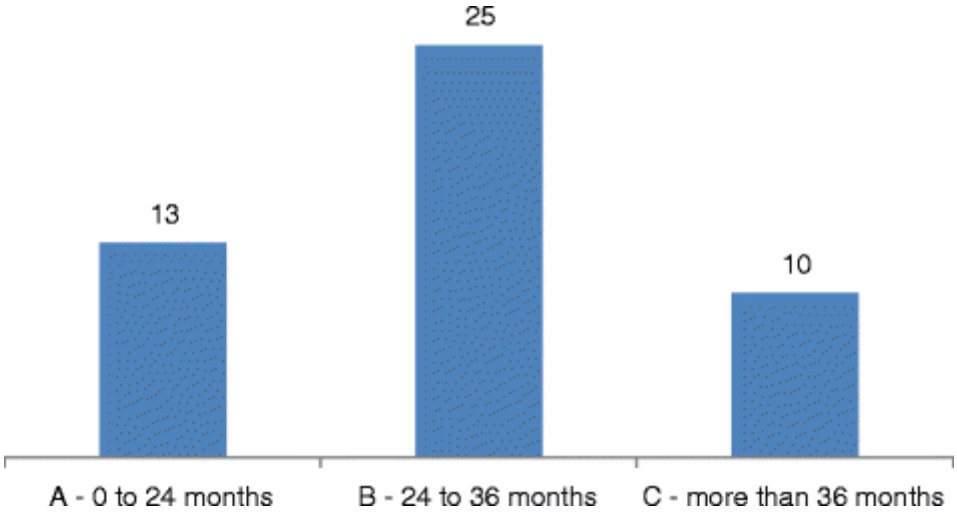


FIGURE 13
AVERAGE ANNUAL GROWTH IN REVENUE IN RELATION TO THE NUMBER OF KEYS INTRODUCED BY THE PARTICIPANTS OPERATING IN MANUFACTURING INDUSTRY—N = 39

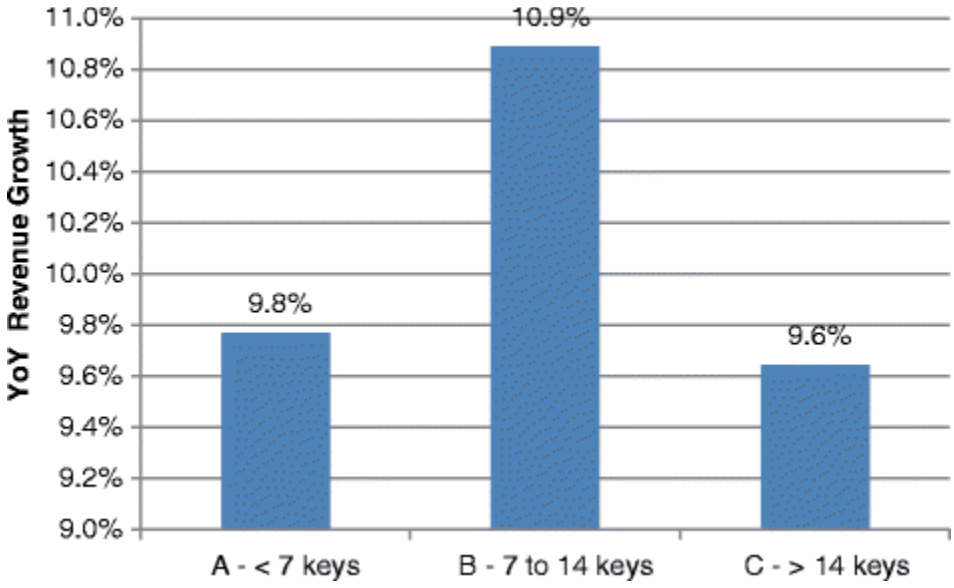


FIGURE 14
AVERAGE ANNUAL GROWTH IN REVENUE IN RELATION TO THE TIME SPENT IN THE PROGRAM BY PARTICIPANTS OPERATING IN MANUFACTURING INDUSTRY—N = 39

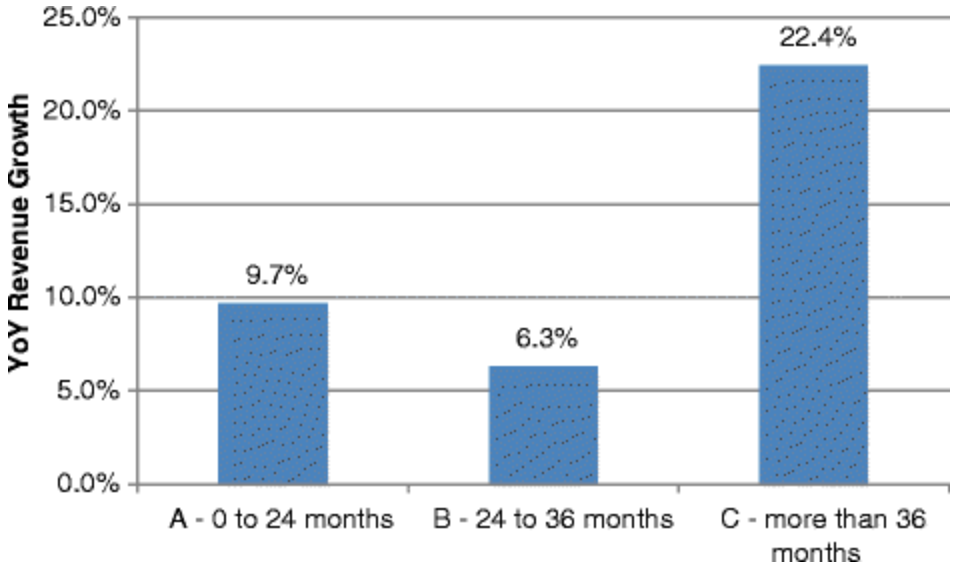


FIGURE 15
AVERAGE CHANGE IN PROFIT MARGIN IN RELATION TO THE NUMBER OF KEYS IMPLEMENTED BY THE PARTICIPANTS OPERATING IN THE MANUFACTURING INDUSTRY—N = 39

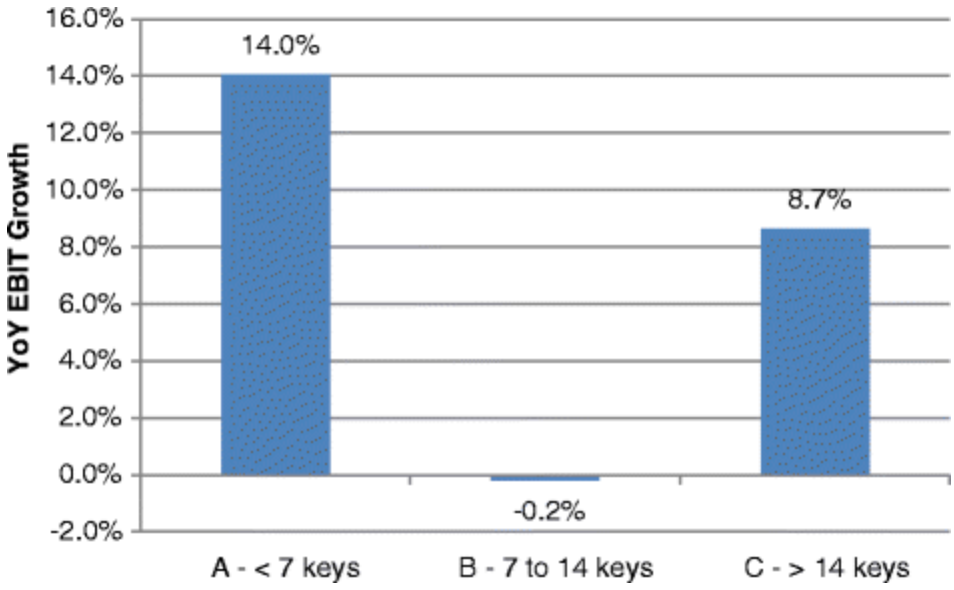


FIGURE 16
AVERAGE CHANGE IN PROFIT MARGINS IN RELATION TO THE TIME SPENT IN THE PROGRAM BY PARTICIPANTS OPERATING IN THE MANUFACTURING INDUSTRY—N = 39

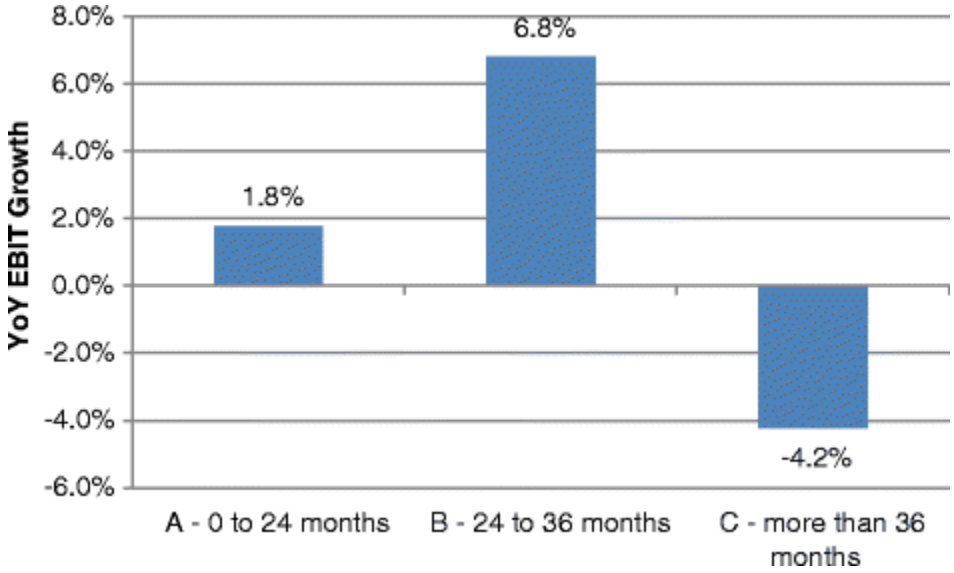


FIGURE 17
THE AVERAGE CHANGE IN PRODUCTIVITY PER EMPLOYEE IN RELATION TO THE NUMBER OF KEYS IMPLEMENTED BY PARTICIPANTS OPERATING IN THE MANUFACTURING INDUSTRY—N = 39

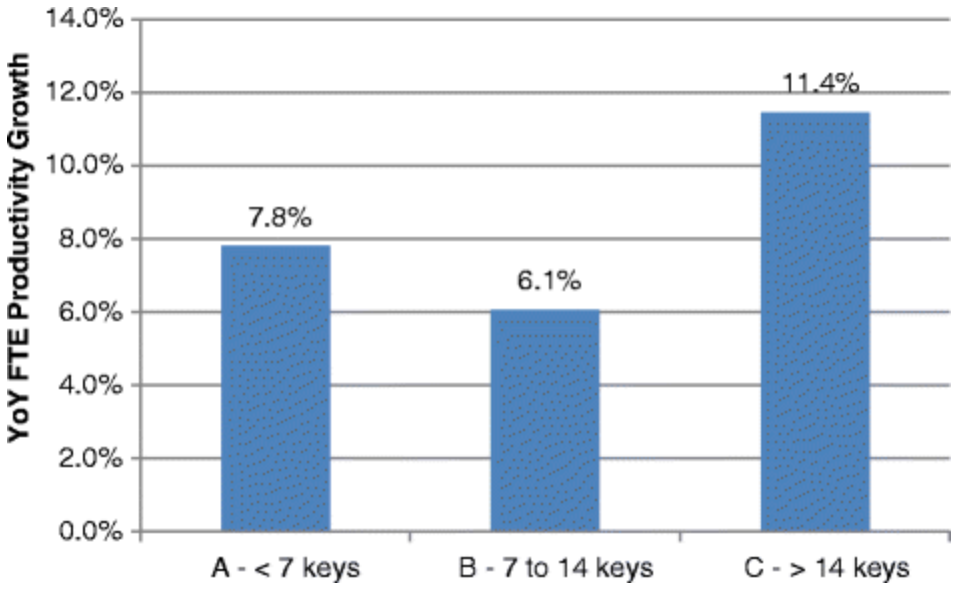


FIGURE 18
THE AVERAGE CHANGE IN PRODUCTIVITY PER EMPLOYEE IN RELATION TO THE TIME SPENT IN THE PROGRAM BY PARTICIPANTS OPERATING IN THE MANUFACTURING INDUSTRY—N = 39

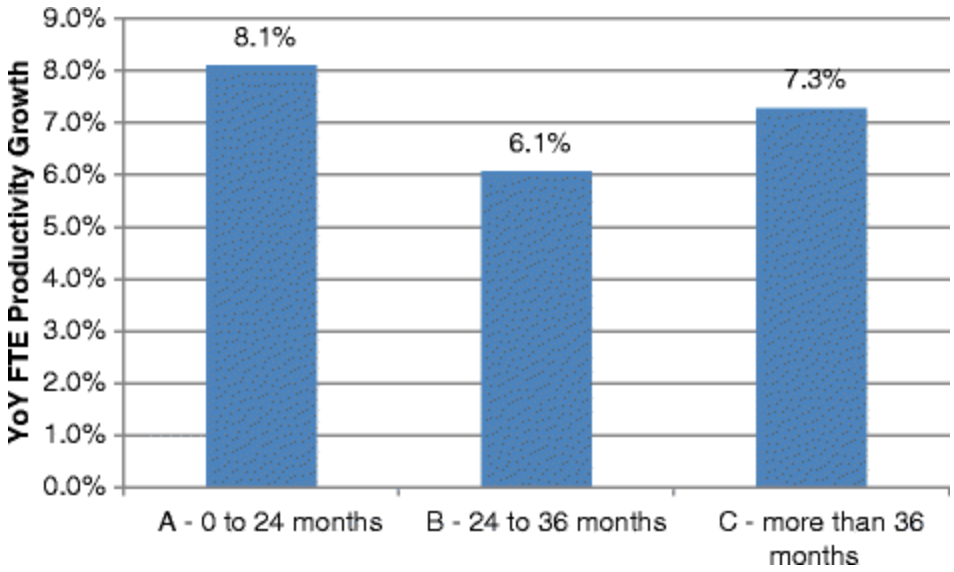


FIGURE 19
HOW WOULD YOU EVALUATE THE PROGRAM? (RATINGS 1 POOR, 3 MEDIOCRE, 5 EXCELLENT), N = 26

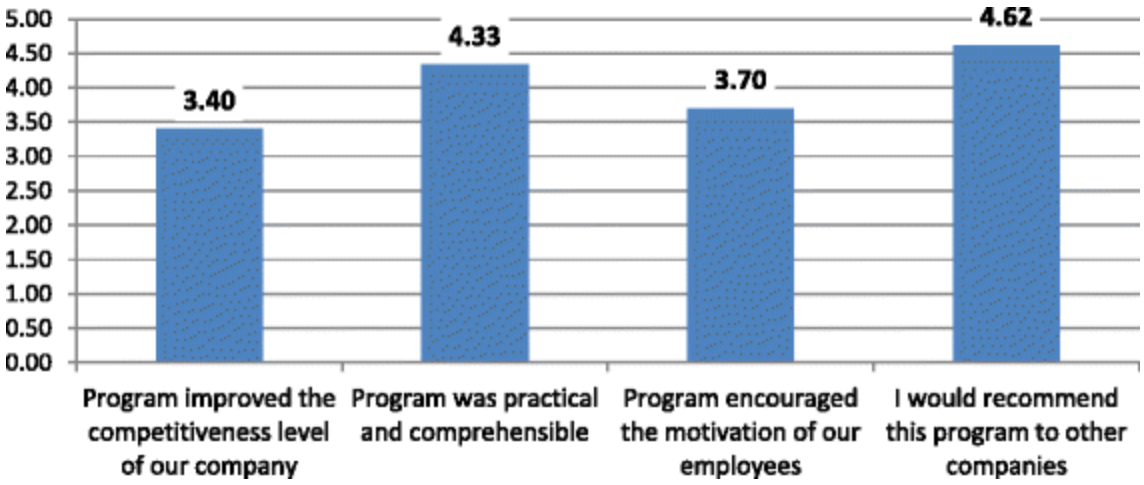


FIGURE 20
HOW WOULD YOU EVALUATE THE MINISTRY'S CO-FINANCING SCHEME? (RATINGS 1 DO NOT AGREE, 3 PARTIALLY AGREE, 5 AGREE COMPLETELY); N = 26

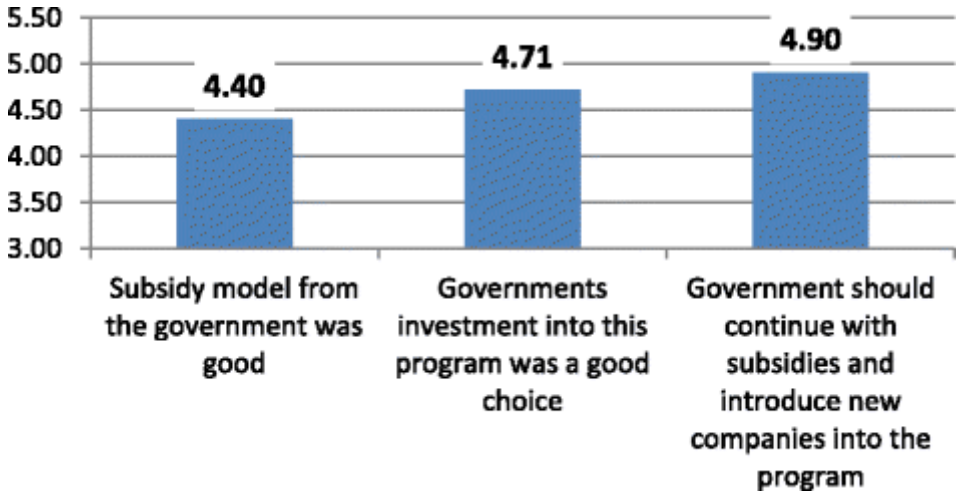
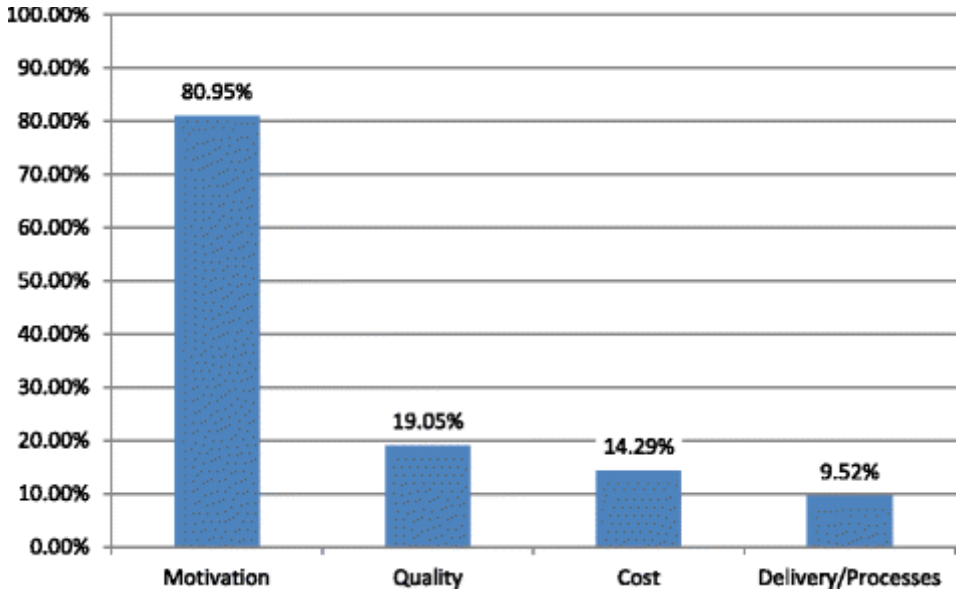


FIGURE 21
WHICH BUSINESS AREAS WERE IMPROVED DUE TO 20 KEYS? (MULTIPLE ANSWERS POSSIBLE); N = 26



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TRANSLATED VERSION: SPANISH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUCIDA: ESPAÑOL

A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

INTRODUCCIÓN

El concepto de producción sostenible surgió en la Conferencia de las Naciones Unidas sobre el Medio Ambiente y el Desarrollo en 1992 y está estrechamente relacionado con el concepto de desarrollo sostenible. En 1996 "La Organización Internacional de Normalización" introdujo una serie de certificaciones y estándares en el ámbito de la ISO 14000, que se ha convertido en el modelo de referencia en el Sistema de Gestión Ambiental (EMS) (Boiral 2007). La certificación ISO 14000 (ISO 14001:2004 e ISO 14004:2004 se centra en los sistemas de gestión ambiental) tiene como objetivo proporcionar un marco para un enfoque estratégico holístico de la política ambiental, los planes y las acciones de la organización. El número total de certificados otorgados a finales de 2000 fue de 22.897, frente a los 14.106 a finales de diciembre de 1999, lo que mostró un aumento increíblemente significativo de 8791. La tasa con la que las empresas obtienen la certificación ISO 14000 ha aumentado de 128.211 a finales de 2006 a 188.815 en 155 países en diciembre (Wiengarten et al. 2013, Organización Internacional de Normalización 2008) destacó que muchos gobiernos y jurisdicciones están introduciendo legislaciones para abordar la sostenibilidad en términos de cambio climático en general y contaminación derivada de productos y procesos. La norma ISO 14000 es la más popular de una creciente familia de instrumentos de autorregulación corporativa que caracterizan una era de intensa reforma regulatoria. Levi-Faur (2005) lo llamó "capitalismo regulatorio", un nuevo paradigma en la teoría regulatoria caracterizado por el surgimiento de formas descentralizadas de regulación, un aumento de la delegación a los organismos autónomos y la proliferación de estructuras internas de gobierno utilizadas por las corporaciones para garantizar la responsabilidad social. Varios autores (Cockrean 2000, Clapp 2004) también han cuestionado la importancia de la ISO 14001 como un instrumento de política eficaz, haciendo hincapié en varias de sus limitaciones. Por ejemplo, no tiene en cuenta el rendimiento medioambiental, ya que no prescribe objetivos específicos; la mejora continua se asocia con las prácticas de gestión y no con el desempeño ambiental; no garantiza el cumplimiento normativo ni promueve la divulgación de información; no distingue el bien de los pobres intérpretes; y carece de requisitos de presentación de informes (Loureiro et al. 2011). Desde el punto de vista de la empresa manufacturera, el conocimiento de la actividad global es esencial para garantizar el éxito empresarial a largo plazo. Para trabajar estratégicamente hacia la sostenibilidad, es imperativo que las empresas definan, implementen y acuerden lo que significa la sostenibilidad para ellas (Broman et al. 2000) y para asegurar que una perspectiva completa de sostenibilidad, incluyendo tanto la sostenibilidad ecológica como la sostenibilidad social, se utilice para guiar los procesos de innovación en lugar de aspectos únicos de la sostenibilidad (Hallstedt et al. 2013).

La metodología de 20 Claves se ha implementado plenamente en 48 empresas de Croacia durante el período comprendido entre 2004 y 2010 y fue cofinanciada por el Ministerio de Economía, Trabajo y Emprendimiento (Ministarstvo gospodarstva, rada i poduzetni-tva 2004). Los resultados del estudio muestran que las empresas que han participado el tiempo suficiente en el programa lograron mejores

resultados financieros y tasas de crecimiento en comparación con el promedio de empresas croatas de las mismas industrias. En el documento se examinaron los cambios de rendimiento y los resultados obtenidos mediante la aplicación de la metodología 20 Keys, se ha puesto de relieve el crecimiento de los ingresos después de la implementación de la metodología Keys con un promedio de las empresas croatas y se ha puesto de relieve el aumento de la motivación de los empleados, ya que se ha puesto de relieve el área en la que se han implementado 20 claves.

CONCLUSIÓN

La introducción de la metodología 20 Keys en las empresas croatas fue subvencionada por el Ministerio de Economía, Trabajo y Emprendimiento en el período comprendido entre 2004 y 2008. A más de 50 empresas que participaron en el programa para aumentar la competitividad se les concedieron subvenciones que ascendieron al 40 % del costo de la introducción de la metodología, realizada por el titular de la licencia en la República de Croacia—Deloitte CE. Esto representa una inversión gubernamental significativa en la economía croata, y en este sentido, la dirección y el objetivo de este estudio se determinaron como dobles: establecer la posición de la metodología en el mundo comparándola con algunas de las metodologías más familiares y mejor conocidas y evaluar objetivamente los resultados y el curso de la implementación en las empresas que participaron en el programa.

Comparando 20 claves con sistemas ISO, seis sigma, fabricación magra y cuadro de mandos equilibrado, descubrimos muchas herramientas y técnicas comunes de enfoque para resolver problemas empresariales. El mayor grado de similitud se observó entre la metodología de 20 Claves y la fabricación magra. El grado de similitud era tal que se puede concluir que estos representan los mismos principios y metas básicas envueltos en un modelo diferente de implementación y presentación. Ambas metodologías derivan una multitud de técnicas del renombrado sistema de producción de Toyota y comparten objetivos primarios comunes: el crecimiento de la productividad y el establecimiento de una cultura de mejora continua en las empresas.

Sin embargo, cuando consideramos la distribución de la metodología en todo el mundo, especialmente en comparación con las metodologías antes mencionadas, llegamos a la conclusión de que 20 Claves no está tan extendida y aceptada en el mundo como lo son otras metodologías. Algunos países como Japón, Sudáfrica, Eslovenia y Croacia representan excepciones. A pesar del relativo anonimato en el mundo, el Ministerio de Economía, Trabajo y Emprendimiento adoptó la metodología como un programa para elevar el desarrollo sostenible y el enfoque holístico de la competitividad de las empresas croatas, siguiendo así un escenario similar al de la República Eslovenia unos años antes.

A pesar del relativo anonimato de la metodología en el mundo, nuestro análisis ha demostrado que las empresas que han participado en el programa lograron tasas de crecimiento y productividad de ingresos más altas que las tasas medias en la República de Croacia. La industria manufacturera fue el sector más representado con 39 participantes en el programa, y los resultados obtenidos por las empresas de este sector muestran claramente que existe una correlación entre la participación en el programa y el crecimiento de los ingresos, así como el crecimiento de la productividad, lo cual es lógico dado que la metodología está destinada principalmente a las empresas manufactureras. Las empresas que operan en la industria manufacturera registraron un crecimiento medio del 10,7 %, lo que en comparación con el crecimiento medio del 4,38 % a nivel nacional, representa una mejora significativa. Además, existe una correlación positiva entre la mayor duración del período pasado en el programa, así como el número de claves implementadas, y los resultados empresariales obtenidos.

Sin embargo, el hecho es que el pleno potencial de la metodología no se utilizó en la República de Croacia. Las herramientas y técnicas de 20 claves no se transfirieron completamente a las empresas croatas durante el período de implementación y seguimiento, especialmente las de los costes de gestión y la velocidad de las categorías de entrega.

La evaluación final de la introducción real de la metodología en las empresas croatas, basada en el análisis anterior y los datos recopilados, es la siguiente: resultados obtenidos junto con el potencial de infrautilización ofrecido por la metodología.

TRANSLATED VERSION: FRENCH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUITE: FRANÇAIS

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INTRODUCTION

Le concept de production durable est apparu à la Conférence des Nations Unies sur l'environnement et le développement en 1992 et est étroitement lié au concept de développement durable. En 1996, « L'Organisation internationale pour la normalisation » a introduit une série de certifications et de normes dans le domaine de l'iso 14000, qui est devenu le modèle de référence dans le système de gestion de l'environnement (SME) (Boiral 2007). La certification ISO 14000 (ISO 14001 :2004 et ISO 14004:2004 focus sur les systèmes de gestion de l'environnement) vise à fournir un cadre pour une approche stratégique holistique de la politique, des plans et des actions environnementales de l'organisation. Le nombre total de certificats délivrés à la fin de 2000 était de 22 897, comparativement à 14 106 à la fin de décembre 1999, soit une augmentation incroyablement significative de 8 791. Le taux de certification ISO 14000 des entreprises est passé de 128 211 à la fin de 2006 à 188 815 dans 155 pays en décembre (Wiengarten et al., 2006). 2013, Organisation internationale pour la normalisation 2008) a souligné que de nombreux gouvernements et juridictions introduisent des lois pour lutter contre la durabilité en termes de changement climatique en général et de pollution dérivée des produits et des procédés. La norme ISO 14000 est la plus populaire d'une famille croissante d'instruments d'autoréforation des entreprises qui caractérisent une ère de réforme réglementaire intense. Levi-Faur (2005) l'a appelé « capitalisme réglementaire », un nouveau paradigme dans la théorie réglementaire caractérisé par l'émergence de formes décentralisées de réglementation, une augmentation de la délégation aux organismes autonomes et la prolifération des structures internes de gouvernance utilisées par les entreprises pour assurer la responsabilité sociale. Plusieurs auteurs (Cockrean 2000, Clapp 2004) ont également mis en doute l'importance de l'iso 14001 en tant qu'instrument politique efficace, soulignant plusieurs de ses limites. Par exemple, il ne tient pas compte du rendement environnemental, car il ne prescrit pas d'objectifs précis ; l'amélioration continue est associée aux pratiques de gestion et non à la performance environnementale ; elle ne s'assure pas de la conformité réglementaire et ne favorise pas non plus la divulgation de renseignements; il ne distingue pas le bien des mauvais interprètes; et il n'a pas d'exigences en matière de rapports (Loureiro et coll., 2011). Du point de vue des entreprises manufacturières, la sensibilisation à l'activité mondiale est essentielle pour assurer le succès commercial à long terme. Pour travailler stratégiquement à la durabilité, il est impératif que les entreprises définissent, mettent en œuvre et s'entendent sur ce que la durabilité signifie pour elles (Broman et coll., 2000) et veillent à ce qu'une perspective complète de durabilité, y compris la durabilité écologique et la durabilité sociale, soit utilisée pour guider les processus d'innovation plutôt que les aspects uniques de la durabilité (Hallstedt et al., 2013).

La méthodologie de 20 Keys a été entièrement mise en œuvre dans 48 entreprises en Croatie entre 2004 et 2010 et a été cofinancée par le Ministère de l'économie, du travail et de l'entrepreneuriat (Ministarstvo gospodarstva, rada i poduzetništva 2004). Les résultats de l'étude montrent que les entreprises qui ont participé assez longtemps au programme ont obtenu de meilleurs résultats financiers et des taux de croissance par rapport à la moyenne des entreprises croates des mêmes industries. Le document a examiné les changements de performance et les résultats obtenus par la mise en œuvre de la méthodologie 20 Keys,

la croissance du chiffre d'affaires après la mise en œuvre 20 Clés méthodologie avec une moyenne des entreprises croates a été comparé et l'augmentation de la motivation des employés que le domaine dans lequel 20 Clés a été mis en œuvre a été mis en évidence.

CONCLUSION

L'introduction de la méthodologie 20 Keys dans les entreprises croates a été subventionnée par le Ministère de l'économie, du travail et de l'entrepreneuriat entre 2004 et 2008. Plus de 50 entreprises qui ont participé au programme d'augmentation de la compétitivité ont obtenu des subventions équivalant à 40 % du coût d'introduction de la méthodologie, menée par le titulaire de la licence en République de Croatie — Deloitte CE. Il s'agit d'un investissement important du gouvernement dans l'économie croate, et en ce sens, l'orientation et l'objectif de cette étude ont été déterminés comme étant doubles : établir la position de la méthodologie dans le monde en la comparant à certaines des méthodologies les plus familières et les plus connues et évaluer objectivement les résultats et le cours de la mise en œuvre dans les entreprises qui ont participé au programme.

En comparant 20 touches avec les systèmes ISO, six sigmas, la fabrication allégée, et tableau de bord équilibré, nous avons découvert de nombreux outils communs et techniques d'approche pour résoudre les problèmes d'affaires. Le degré le plus élevé de similitude a été observé entre la méthodologie de 20 Keys et la fabrication allégée. Le degré de similitude était tel qu'on peut conclure qu'ils représentent les mêmes principes et objectifs de base enveloppés dans un modèle différent de mise en œuvre et de présentation. Les deux méthodologies tirent une multitude de techniques du célèbre système de production Toyota et partagent des objectifs primaires communs : la croissance de la productivité et l'établissement d'une culture d'amélioration continue dans les entreprises.

Toutefois, lorsque nous considérons la distribution de la méthodologie dans le monde entier, en particulier par rapport aux méthodologies susmentionnées, nous avons conclu que 20 Keys n'est pas aussi répandue et acceptée dans le monde comme le sont d'autres méthodologies. Quelques pays comme le Japon, l'Afrique du Sud, la Slovénie et la Croatie représentent des exceptions. Malgré l'anonymat relatif dans le monde, le Ministère de l'économie, du travail et de l'entrepreneuriat a adopté la méthodologie comme un programme visant à améliorer le développement durable et l'approche holistique de la compétitivité des entreprises croates, suivant ainsi un scénario similaire à celui de la République slovène quelques années plus tôt.

Malgré l'anonymat relatif de la méthodologie dans le monde, notre analyse a montré que les entreprises qui ont participé au programme ont atteint des taux de croissance et de productivité des revenus plus élevés que les taux moyens en République de Croatie. L'industrie manufacturière était le secteur le plus représenté avec 39 participants au programme, et les résultats obtenus par les entreprises de ce secteur montrent clairement qu'il existe une corrélation entre la participation au programme et la croissance des revenus, ainsi que la croissance de la productivité, ce qui est logique étant donné que la méthodologie est destinée principalement aux entreprises manufacturières. Les entreprises opérant dans l'industrie manufacturière ont enregistré une croissance moyenne de 10,7 %, ce qui, par rapport à la croissance moyenne de 4,38 % au niveau national, représente une amélioration significative. De plus, il existe une corrélation positive entre la plus grande durée de la période consacrée au programme, ainsi que le nombre de clés mises en œuvre et les résultats commerciaux obtenus.

Toutefois, le fait est que le plein potentiel de la méthodologie n'a pas été utilisé en République de Croatie. Les outils et techniques de 20 Keys n'ont pas été entièrement transférés aux entreprises croates pendant la période de mise en œuvre et de suivi, en particulier ceux des coûts de gestion et de la rapidité des catégories de livraison.

L'évaluation finale de l'introduction réelle de la méthodologie dans les entreprises croates, basée sur l'analyse précédente et les données recueillies, est la suivante : résultats obtenus parallèlement au potentiel de sous-utilisation offert par la méthodologie.

TRANSLATED VERSION: GERMAN

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

ÜBERSETZTE VERSION: DEUTSCH

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EINLEITUNG

Das Konzept der nachhaltigen Produktion wurde 1992 auf der Konferenz der Vereinten Nationen über Umwelt und Entwicklung entwickelt und steht in engem Zusammenhang mit dem Konzept der nachhaltigen Entwicklung. 1996 führte "The International Organization for Standardization" eine Reihe von Zertifizierungen und Standards im Bereich der ISO 14000 ein, die zum Referenzmodell im Environmental Management System (EMS) (Boiral 2007) geworden ist. Die ISO 14000-Zertifizierung (ISO 14001:2004 und ISO 14004:2004 konzentrieren sich auf Umweltmanagementsysteme) soll einen Rahmen für einen ganzheitlichen strategischen Ansatz für die Umweltpolitik, -pläne und -maßnahmen der Organisation bieten. Die Gesamtzahl der Ende 2000 ausgestellten Zertifikate belief sich auf 22.897 gegenüber 14.106 Ende Dezember 1999, was einem unglaublich deutlichen Anstieg von 8791 entspricht. Die Rate, mit der Unternehmen ISO 14000 zertifiziert erhalten, ist von 128.211 Ende 2006 auf 188.815 in 155 Ländern im Dezember gestiegen (Wiengarten et al. 2013, International Organization for Standardization 2008), wies darauf hin, dass viele Regierungen und Gerichtsbarkeiten Gesetze zur Bekämpfung der Nachhaltigkeit im Allgemeinen und der produkt- und prozessabgeleiteten Verschmutzung einführen. Der ISO 14000-Standard ist der beliebteste einer wachsenden Familie von Selbstregulierungsinstrumenten für Unternehmen, die eine Ära intensiver Regulierungsreformen charakterisieren. Levi-Faur (2005) nannte es "Regulierungskapitalismus", ein neues Paradigma in der Regulierungstheorie, das sich durch das Aufkommen dezentraler Regulierungsformen, eine zunehmende Delegierung an autonome Agenturen und die Verbreitung interner Governance-Strukturen auszeichnet, die von Unternehmen genutzt werden, um soziale Verantwortung zu gewährleisten. Mehrere Autoren (Cockrean 2000, Clapp 2004) haben ebenfalls die Bedeutung von ISO 14001 als wirksames politisches Instrument in Frage gestellt und dabei mehrere seiner Grenzen betont. Beispielsweise berücksichtigt sie nicht die Umweltleistung, da sie keine spezifischen Ziele vorschreibt; kontinuierliche Verbesserung ist mit Managementpraktiken und nicht mit Umweltleistungen verbunden; sie gewährleistet weder die Einhaltung gesetzlicher Vorschriften noch fördert sie die Offenlegung von Informationen; es unterscheidet nicht gut von schlechten Leistungen; und es fehlt es an Berichtspflichten (Loureiro et al. 2011). Aus Sicht des produzierenden Unternehmens ist das Bewusstsein für die globale Aktivität unerlässlich, um den langfristigen Geschäftserfolg zu gewährleisten. Um strategisch auf Nachhaltigkeit hinzuarbeiten, müssen Unternehmen unbedingt definieren, umsetzen und vereinbaren, was Nachhaltigkeit für sie bedeutet (Broman et al. 2000) und sicherstellen, dass eine vollständige Nachhaltigkeitsperspektive, einschließlich ökologischer Nachhaltigkeit und sozialer Nachhaltigkeit, als Orientierungshilfe für Innovationsprozesse und nicht als einzelne Aspekte der Nachhaltigkeit genutzt wird (Hallstedt et al. 2013).

Die Methodik von 20 Keys wurde in 48 Unternehmen in Kroatien im Zeitraum von 2004 bis 2010 vollständig umgesetzt und vom Ministerium für Wirtschaft, Arbeit und Unternehmertum kofinanziert (Ministarstvo gospodarstva, rada i poduzetni-tva 2004). Studienergebnisse zeigen, dass Unternehmen, die lange genug am Programm teilgenommen haben, bessere finanzielle Ergebnisse und Wachstumsraten im Vergleich zum Durchschnitt der kroatischen Unternehmen aus den gleichen Branchen erzielt haben. Papier untersuchte Leistungsänderungen und Ergebnisse, die durch die Implementierung der 20 Keys-Methodik

erzielt wurden, Umsatzwachstum nach der Implementierung 20 Keys-Methodik mit einem Durchschnitt kroatischer Unternehmen wurde verglichen und die Motivation der Mitarbeiter erhöht, da der Bereich, in dem 20 Keys implementiert wurde, hervorgehoben wurde.

SCHLUSSFOLGERUNG

Die Einführung der 20 Keys-Methodik in kroatischen Unternehmen wurde vom Ministerium für Wirtschaft, Arbeit und Unternehmertum im Zeitraum von 2004 bis 2008 subventioniert. Mehr als 50 Unternehmen, die an dem Programm zur Steigerung der Wettbewerbsfähigkeit teilnahmen, erhielten Subventionen in Höhe von 40 % der Kosten für die Einführung der Methode, die vom Lizenzinhaber in der Republik Kroatien – Deloitte CE – durchgeführt wurden. Dies stellt eine bedeutende staatliche Investition in die kroatische Wirtschaft dar, und in diesem Sinne wurden die Richtung und das Ziel dieser Studie in zweifacher Hinsicht festgelegt – die Position der Methodik in der Welt zu bestimmen, indem sie mit einigen der vertrauteren und bekannteren Methoden verglichen wird und die Ergebnisse und den Verlauf der Umsetzung in Unternehmen, die am Programm teilgenommen haben, objektiv bewertet werden.

Beim Vergleich von 20 Schlüsseln mit ISO-Systemen, sechs Sigmas, Lean Manufacturing und Balanced Scorecard entdeckten wir viele gängige Werkzeuge und Techniken zur Lösung von Geschäftsproblemen. Der höchste Grad an Ähnlichkeit wurde zwischen 20 Keys-Methodik und Lean Manufacturing beobachtet. Der Grad der Ähnlichkeit war so groß, dass man zu dem Schluss schließen kann, dass diese die gleichen Grundprinzipien und Ziele darstellen, die in einem anderen Modell der Umsetzung und Darstellung umhüllt sind. Beide Methoden leiten eine Vielzahl von Techniken aus dem renommierten Toyota-Produktionssystem ab und teilen gemeinsame Hauptziele – Produktivitätswachstum und die Etablierung einer Kultur der kontinuierlichen Verbesserung in Unternehmen.

Wenn wir jedoch die Verteilung der Methodik auf die ganze Welt betrachten, insbesondere im Vergleich zu den oben genannten Methoden, kamen wir zu dem Schluss, dass 20 Keys in der Welt nicht annähernd so weit verbreitet und akzeptiert sind wie andere Methoden. Einige Länder wie Japan, Südafrika, Slowenien und Kroatien stellen Ausnahmen dar. Trotz der relativen Anonymität in der Welt hat das Ministerium für Wirtschaft, Arbeit und Unternehmertum die Methodik als Programm zur Förderung einer nachhaltigen Entwicklung und eines ganzheitlichen Ansatzes für die Wettbewerbsfähigkeit kroatischer Unternehmen übernommen und damit einem ähnlichen Szenario wie in der Republik Slowenien einige Jahre zuvor folgen.

Trotz der relativen Anonymität der Methodik in der Welt hat unsere Analyse gezeigt, dass Unternehmen, die an dem Programm teilgenommen haben, höhere Wachstumsraten und Produktivität erreicht haben als die durchschnittlichen Raten in der Republik Kroatien. Das verarbeitende Gewerbe war mit 39 am Programm am stärksten vertretenen Sektor, und die Ergebnisse der Unternehmen in diesem Sektor zeigen deutlich, dass es einen Zusammenhang zwischen der Teilnahme am Programm und dem Umsatzwachstum sowie dem Produktivitätswachstum gibt – was logisch ist, da die Methodik in erster Linie für fertigungsverarbeitende Unternehmen bestimmt ist. Die unternehmenden Unternehmen des verarbeitenden Gewerbes verzeichneten ein durchschnittliches Wachstum von 10,7 %, was im Vergleich zum durchschnittlichen Wachstum von 4,38 % auf nationaler Ebene eine deutliche Verbesserung darstellt. Außerdem besteht eine positive Korrelation zwischen der größeren Dauer des im Programm verbrachten Zeitraums sowie der Anzahl der implementierten Schlüssel und den erzielten Geschäftsergebnissen.

Tatsache ist jedoch, dass das volle Potenzial der Methodik in der Republik Kroatien nicht genutzt wurde. Die Werkzeuge und Techniken von 20 Schlüsseln wurden während der Implementierung und Überwachung nicht vollständig auf kroatische Unternehmen übertragen, insbesondere die der Verwaltungskosten und der Geschwindigkeit der Lieferkategorien.

Die endgültige Bewertung der tatsächlichen Einführung der Methodik in kroatischen Unternehmen auf der Grundlage der vorherigen Analyse und der gesammelten Daten ist wie folgt: Ergebnisse zusammen mit dem durch die Methodik gebotenen Unterauslastungspotenzial erzielt.

TRANSLATED VERSION: PORTUGUESE

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

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Aqui está uma tradução aproximada das ideias acima apresentadas. Isto foi feito para dar uma compreensão geral das ideias apresentadas no documento. Por favor, desculpe todos os erros gramaticais e não responsacule os autores originais responsáveis por estes erros.

INTRODUÇÃO

O conceito de produção sustentável surgiu na Conferência das Nações Unidas sobre Meio Ambiente e Desenvolvimento em 1992 e está intimamente relacionado ao conceito de desenvolvimento sustentável. Em 1996, "A Organização Internacional para a Padronização" introduziu uma série de certificações e padrões no domínio da ISO 14000, que se tornou o modelo de referência em Sistema de Gestão Ambiental (EMS) (Boiral 2007). A certificação ISO 14000 (ISO 14001:2004 e ISO 14004:2004 com foco em sistemas de gestão ambiental) destina-se a fornecer uma estrutura para uma abordagem estratégica holística da política ambiental, planos e ações da organização. O número total de certificados concedidos no final de 2000 foi de 22.897, contra 14.106 no final de dezembro de 1999, mostrando um aumento incrivelmente significativo de 8791. A taxa pela qual as empresas estão recebendo certificação ISO 14000 aumentou de 128.211 no final de 2006 para 188.815 em 155 países em dezembro (Wiengarten et al. 2013, Organização Internacional para a Padronização 2008) destacou que muitos governos e jurisdições estão introduzindo legislações para abordar a sustentabilidade em termos de mudanças climáticas em geral e poluição derivada de produtos e processos. A norma ISO 14000 é a mais popular de uma família crescente de instrumentos auto-regulatórios corporativos que tipificam uma era de intensa reforma regulatória. Levi-Faur (2005) chamou de "capitalismo regulatório", um novo paradigma na teoria regulatória caracterizado pelo surgimento de formas descentralizadas de regulação, aumento da delegação para agências autônomas e proliferação de estruturas internas de governança utilizadas pelas corporações para garantir a responsabilidade social. Vários autores (Cockrean 2000, Clapp 2004) também questionaram a importância da ISO 14001 como instrumento político eficaz, enfatizando várias de suas limitações. Por exemplo, não leva em consideração o desempenho ambiental, pois não prescreve metas específicas; a melhoria contínua está associada às práticas de gestão e não ao desempenho ambiental; não garante a conformidade regulatória nem promove a divulgação de informações; não distingue o bem dos maus desempenhos; e falta requisitos de notificação (Loureiro et al. 2011). Do ponto de vista empresarial, a conscientização sobre a atividade global é essencial para garantir o sucesso dos negócios a longo prazo. Para trabalhar estrategicamente em direção à sustentabilidade, é imprescindível que as empresas definam, implementem e concordem com o que significa sustentabilidade para elas (Broman et al. 2000) e para garantir que uma perspectiva completa de sustentabilidade, incluindo sustentabilidade ecológica e sustentabilidade social, seja usada para orientar processos de inovação em vez de aspectos únicos da sustentabilidade (Hallstedt et al. 2013).

A metodologia de 20 Chaves foi totalmente implementada em 48 empresas na Croácia durante o período entre 2004 e 2010 e foi cofinanciado pelo Ministério da Economia, Trabalho e Empreendedorismo (Ministarstvo gospodarstva, rada i poduzetništva 2004). Os resultados do estudo mostram que as empresas que participaram por tempo suficiente no programa alcançaram melhores resultados financeiros e taxas de crescimento em comparação com a média das empresas croatas de mesmas indústrias. O artigo analisou as mudanças de desempenho e os resultados alcançados pela implementação da metodologia 20 Keys, o crescimento da receita após a implementação da metodologia 20 Keys com uma média de empresas croatas foi comparado e o aumento da motivação dos funcionários como área em que 20 Keys foi implementado foi destacado.

CONCLUSÃO

A introdução da metodologia 20 Keys em empresas croatas foi subsidiada pelo Ministério da Economia, Trabalho e Empreendedorismo no período de 2004 a 2008. Mais de 50 empresas que participaram do programa de aumento da competitividade receberam subsídios no valor de 40 % do custo de introdução da metodologia, realizado pelo titular da licença na República da Croácia — Deloitte CE. Isso representa um investimento governamental significativo na economia croata e, nesse sentido, a direção e o objetivo deste estudo foram determinados como duplo — estabelecer a posição da metodologia no mundo, comparando-a com algumas das metodologias mais familiares e mais conhecidas e para avaliar objetivamente os resultados e o curso de implementação das empresas que participaram do programa.

Comparando 20 Chaves com sistemas ISO, seis sigma, manufatura enxuta e scorecard equilibrado, descobrimos muitas ferramentas e técnicas comuns de abordagem para resolver problemas de negócios. O maior grau de similaridade foi observado entre a metodologia 20 Keys e a fabricação lean. O grau de similaridade foi tal que pode-se concluir que estes representam os mesmos princípios e metas básicas envoltos em um modelo diferente de implementação e apresentação. Ambas as metodologias derivam uma infinidade de técnicas do renomado sistema de produção Toyota e compartilham objetivos primários comuns — o crescimento da produtividade e o estabelecimento de uma cultura de melhoria contínua nas empresas.

No entanto, quando consideramos a distribuição da metodologia em todo o mundo, especialmente em comparação com as metodologias acima mencionadas, concluímos que 20 Chaves não é tão difundida e aceita no mundo como outras metodologias são. Alguns países como Japão, África do Sul, Eslovênia e Croácia representam exceções. Apesar do relativo anonimato no mundo, o Ministério da Economia, Trabalho e Empreendedorismo adotou a metodologia como um programa para elevar o desenvolvimento sustentável e a abordagem holística da competitividade das empresas croatas, seguindo assim um cenário semelhante ao da República Eslovênia alguns anos antes.

Apesar do relativo anonimato da metodologia no mundo, nossa análise mostrou que as empresas que participaram do programa alcançaram taxas mais altas de crescimento de receita e produtividade do que as taxas médias na República da Croácia. A indústria manufatureira foi o setor mais representado, com 39 participantes do programa, e os resultados alcançados pelas empresas do setor mostram claramente que há uma correlação entre participação no programa e crescimento da receita, bem como crescimento da produtividade — o que é lógico, dado que a metodologia se destina principalmente às empresas manufatureiras. As empresas que atuam na indústria manufatureira registraram um crescimento médio de 10,7 %, o que em comparação com o crescimento médio de 4,38 % em nível nacional, representa uma melhora significativa. Além disso, há uma correlação positiva entre a maior duração do período gasto no programa, bem como o número de chaves implementadas, e os resultados dos negócios alcançados.

No entanto, o fato é que todo o potencial da metodologia não foi utilizado na República da Croácia. As ferramentas e técnicas de 20 Keys não foram totalmente transferidas para empresas croatas durante o período de implementação e monitoramento, especialmente as de custos de gestão e velocidade das categorias de entrega.

A avaliação final da efetiva introdução da metodologia nas empresas croatas, com base na análise prévia e nos dados coletados, é a seguinte: resultados alcançados ao lado do potencial de subutilidade oferecido pela metodologia.