

Business Continuity Training: Educational Programme Proposal

Raquel Sanchis*, Giulio Marcucci**, Raul Poler*, Filippo Emanuele Ciarapica**

**Research Centre on Production Management and Engineering (CIGIP),
Universitat Politècnica de València.*

Calle Alarcón, nº1, Alcoy, 03801 Alicante, Spain (e-mail: rsanchis@cigip.upv.es)

***Department of Industrial Engineering and Mathematical Science, Università Politecnica delle Marche, Via Brecce Bianche, Ancona, 60131, Ancona, Italy; (e-mail: g.marcucci@staff.univpm.it)*

Abstract: The COVID-19 pandemic has had and is having devastating effects on the health of the population, but also on the economic health of companies and their supply chains. The old paradigms of the commercial and industrial world have been inevitably disrupted: global supply chains have shifted from a system based on efficiency to one oriented towards resilience. Business continuity has become a key activity to be considered in all business processes. Nevertheless, specific studies to train highly qualified professionals in Business Continuity are rare. Therefore, this paper suggests the topics and subjects to be included in a university educational programme proposal to train business continuity managers. This proposal can contribute into building digital education readiness supporting the business continuity manager training, as one of the most important weapons of responsiveness, adaptability, and flexibility to provide companies resilience during next black swan events.

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1. INTRODUCTION

In this historical situation, the COVID-19 pandemic is having a growing impact on global businesses and economy. The nationwide lockdowns due to the spread of COVID-19 have forced most of nations to stop their economy, and this has critically affected organizations economic and technological structure. These implications require more than ever the need for resilience in both business and society (Sanchis et al., 2019). In this context, it has proven essential the need for a company to avoid, within the limits imposed by lockdowns, the interruption of the supply of its products or services. Therefore, it is necessary to integrate risk management programs through the development of more resilient business procedures. In this sense, the outdated and often ineffective risk management techniques can be inadequate to characterize low-probability, high-consequence events and cannot deal with unforeseeable events (Marcucci et al., 2022; Bevilacqua et al., 2020). Business Continuity (BC) perfectly sums up this modern industrial need as "the ability of an organization to continue to deliver products or services at predefined acceptable levels following an incident" (ISO 22300:2012). To do so, it is necessary to be as resilient as possible, that from an enterprise viewpoint, it is the capacity to anticipate and be prepared to face disruptive events and, if unavoidable occurrence takes place, the capacity to recover as quickly and efficiently as possible (Sanchis et al., 2020). When resilience involves the whole supply chain, it is defined as the capacity of the supply chain to withstand, adapt, and recover from disruptions to meet customer demand and ensure performance (Hosseini et al., 2019). At a higher level, Zhao et al. (2011) focus on a network perspective, in which supply network resilience against disruptions lies in its ability to maintain operations and connectedness under the loss of some structures

or functions. In these definitions, the multidimensional nature of resilience is found: (i) static, when founded on preparedness and preventive measures to minimize threats probability and to reduce any impact that may occur, and (ii) dynamic, when founded on the ability of managing disruptions and unexpected events to shorten unfavourable aftermaths and maximize the organization's speed of recovery to the original or to a new more desirable state (Annarelli et al., 2016).

BC and resilience are subjects still little known in the professional field. There are multiple limitations that hinder the practical application (Sanchis et al., 2020b). This type of education and awareness are key competences, as they uphold the highest standards and the latest innovations in the industry. Moreover, they are helpful to the highest levels of any organization, who will be able to build a resilience culture across their workforce. The need for higher awareness on resilience and BC derives from the increasing necessity from organizations to be more resilient. Most organizations showed a poor display in terms of preparedness to the pandemic, with many lacking crisis management and BC Management arrangements (Sanchis and Poler, 2020; Sheffi, 2020; BCI, 2020a).

Therefore, according to further research by the Business Continuity Institute, out of nearly 300 organizations, 90% stated they believe they will be getting increased support for their BC function (BCI, 2020b). A benchmarking study on business threats highlighted that the number of organizations certifying against ISO 22301 has been growing throughout the years, amounting to one in five organizations in 2019 (BCI, 2020c). Moreover, inter-sectorial brainstorming meetings were carried out to identify further gaps in the sector. The results of this study were the identification of a lack of appropriate tools to increase competences in education and

lifelong learning within the BC. For this reason, it is critical to create an appropriate education and training, horizontal to all sectors and independent from the geographical and political context, intrinsically transnational, able to train the BC Manager as a professional figure with an in-depth knowledge of BC and resilience issues and related governance frameworks, best-practices and protocols. To fulfil this need, the CONTINUITY online learning platform and curricula will be developed.

The paper is organized as follows. This section introduced the motivation of the paper. Section 2 describes the main contribution of the paper defining the continuity business managers online training platform. This section shows the objectives of the training programme, the addressed users, the modules' contents and the benefits of this platform. Finally, conclusions and future work are highlighted in section 3.

2. BUSINESS CONTINUITY MANAGERS TRAINING PLATFORM

Based on the motivation described in section 1 and on the need of a new role in enterprises that manage complex situations in crisis times, a new figure is required. This new role has been coined as BC managers. It is a new role that involves the outdated functions of risk managers with new functions required to be prepared in advance, adapt and recover from any situation to respond as resilient as possible and guarantee the BC. The BC manager is now a key figure within the company: he/she is responsible for developing BC plans, for identifying BC requirements and solutions, for identifying risks to BC, and for following up on the implementation of such plans.

In this sense, a survey, carried out as part of the needs' analysis, among different programmes on BC issues, shows some project initiatives aimed at building online platforms for the networking and provision of unspecified services to Small and Medium Enterprises (SMEs) on BC. Although it is believed that the design, implementation and activation of useful platforms are worthy of great support, it must be kept in mind that the contents of these tools must be constantly updated in order to be beneficial. In fact, there is a need for such containers to meet the real needs of those who work in SMEs and should deal with BC, young people who need to acquire knowledge and experience expendable on the labour market and as possible professional outlets. In this sense, BC is one of the most important weapons of responsiveness, adaptability and flexibility that companies need against the current global emergency. It is necessary to build digital education readiness, by providing companies of this critical instrument to increase resilience. Based on this gap, the CONTINUITY project is born whose main objective is to establish a learning path for the training of the "BC Manager", in line with future European policies. CONTINUITY will develop tools for recognition of BC Manager as a horizontally required profession in the business world (from manufacturing in general to the service sector) in order to cover market needs and future European policies regarding BC methodologies. Thus, CONTINUITY will design, develop, test, evaluate and publish specific contents for the training of the BC Manager. The development of professionalizing contents will also correspond to the design and development of methods,

techniques and tools for teaching and learning. Moreover, it will add considerable value to existing knowledge at European level because it will provide content, methods, means and tools that currently only exist in a barely sketchy, generic and fragmented way.

2.1 Objectives of the BC Training Innovative Programme

The specific objectives of this training innovation programme are described as follows:

- Promote cooperation between European Union organisations and training providers within the BC environment, to create a network for the development of mobility, education or innovation projects in this field. Learning about local or international education, and develop BC management programmes focused on the acquisition of new professional skills and competences through the combination of informal and non-formal methods and the use of ICT.
- Improve the quality and relevance of training provision by developing new innovative approaches and disseminating these competencies best practices.
- Promote provision and assessment of key competences for those responsible for BC, including basic and transversal skills such as project management and European funding programmes.

2.2 Target Groups involved in the BC Training Innovative Programme

This new context that we are experiencing due to the negative impacts of COVID-19 requires to focus on the improvement of the current knowledge and skills to bounce back from this situation. This requires the involvement of different actors that guarantee the fulfilment of the coaching needs with new resilient, adaptative, flexible, robust, and agile knowledge competences. The actors involved in this novel training programme are the following:

- Higher Education Institutions (HEIs) and training centres will be aware, timely and able to respond effectively to BC needs, competitive and attractive for students, teachers and strategic partners (such as SME), bonding stronger and noteworthy networks.
- Teachers will increase their knowledge and update educational resources by incorporating innovation and issues into the BC's learning content, fostering a change in current thinking and enhancing specific skills that will improve learners' profile. They will be more aware of the importance of their role in promoting these complementary processes and intra/interinstitutional collaboration.
- Learners will improve their BC knowledge, stimulating their mentality and T-shaped skills. They will be offered unique and innovative international learning opportunities built on a strong university-business cooperation structure formed by the CONTINUITY alliance.

- Enterprises will put university-business cooperation at the centre of their agenda as they will undertake a process of sectoral change and valorisation that will be beneficial for their sector development. They will adapt their mentality and organisational structure to successfully face future challenges and establish new forms of cooperation with the academic world.

2.3 Modules of the BC Training Innovative Programme.

The BC training innovative programme will promote different interactive peer activities by combining informal learning methodologies (resulting from daily life activities and not structured in terms of learning objectives, timing or resources) and non-formal learning (delivered within planned activities not specifically designed as learning), as defined according to the European Guidelines for the validation of nonformal and informal learning, published in 2016 by the European Centre for the Development of Vocational Training (CEDEFOP).

The educational programme will comply with the European Credit Transfer and Accumulation System (ECTS) and the national accreditation standards for education.

The programme consists of 5 modules divided as follows:

Module I. Organisation Resilience

This module is focused on organisation resilience (OR) from the preparedness point of view, in order to anticipate key events related to emerging hazards and to adapt constantly to change. Adaptive and recovery capacities will be dealt in the subsequent modules. Modules II and III will offer instead the next training steps based on the OR assessment and guidelines learned in this module.

The practical training module materials will be designed following this continuum formed by four main training paths:

- Essentials of OR: this session carries the audience into the heart of OR. It is mostly about how OR can reduce disaster consequences and have them under control.
- Assessment of the end-users training needs through the identification of the most worrisome threats that have negative impacts on OR.
- Definition of preparedness actions to enhance the readiness to face up to current threats based on individual use cases.
- Assessment and enhancement of the preparedness capacity of organisations using the Self- Assessment Tool to Improve Enterprise Resilience (SATIER) (<https://satier.blogs.upv.es/>).

Moreover, this type of education and awareness are key competences that anyone working in the BC field needs, as they uphold the highest standards in the industry and the latest innovations. These will be helpful to the highest levels of any organization, who will be able to form a resilience culture across their workforce. This module is considering the current requirements of regulatory authorities, European Union

policies, directives and regulations and current legislation as the international BC and Crisis management standards.

Module II. Business Continuity

This module aims to illustrate the fundamental principles of the BC management methodology for a correct implementation within an organization.

The module will highlight the foundations of BC management and how to build a BC management system. As according to international standards (ISO22301), the module will not just describe the plan but also the organizational processes necessary to embed it and build a resilient culture. These include, but are not limited to:

- Obtaining top management commitment.
- Cascading BC management culture through the organization.
- Conducting a business impact analysis and testing the plan.

In addition, a BC management system applies to the supply chain, which is traditionally one of the most vulnerable spots for an organization.

The module will also concentrate on this aspect to provide relevant continuity measures.

Module III. Crisis Management

According to the British Standard Institute, crisis management is the ability to manage crises, understood as situations that threaten an organisation's strategic objectives, reputation and very existence. Crisis management content will cover, as said the needs of a BC professional when dealing with an unforeseeable event that may be escalated to a crisis and the way their treatment integrates to the overall organization resilience framework and effort, together with the rest of the principles of continuity.

The practical training module will consist of:

- Crisis management plan: A plan that documents the process that an organization must follow to respond to a critical situation that would negatively affect its profitability, reputation or ability to operate. The plan should be focused on the provision of a generic response capability.
- Crisis management team and leadership: A crisis management team is formed by an organization top management with the aim to protect the organization against potential effects of a crisis. It is responsible to execute relevant crisis plans and the module will provide the guidelines to build an appropriate team.
- Crisis communication: This includes all the training materials about the activities performed by an organization in order to effectively communicate internally and externally during a crisis. Effective crisis communications position the organization as

the central source of information, reassure stakeholders and demonstrate control of the situation in order to collect, process, and disseminate of information required to address a crisis situation.

- Training and awareness: This is related to the development of skills and promotion of awareness for people with roles that support the critical service.
- Crisis exercises: This training part will ensure that all arrangements are in place (e.g. crisis management plan, crisis management team, roles, etc.) works properly and all relevant roles are capable to practise realistically about their responsibilities and actions in a time of crisis.

IV Module. Supply Chain Resilience.

This module will present practical cases and best practices on how to best manage continuity and resilience applied to the supply chain.

The module will first layout a short introduction about supply chain, giving a broader point of view in studying and analysing the subject. The training path will follow the supply chain resilience triangle modularization:

- Prevention: this educational material will outline the activities of supply chain with the goal of preventing a given disorder, decreasing, when possible, both the likelihood and the impact of a disruption.
- Mitigation: this part will outline the initial response to the event, where a "workaround" solution to the problem is preferred. The aim at this stage is to control the situation and prevent further damage and first companies action aimed to resume activities after the destructive event took place.
- Recovery: this module's section will outline all the actions required to bring back supply chain performance to the previous levels as soon as possible.
- Long-term impact: It is understood as the possibility that disruptions can affect the long-term performance of a supply chain, without ensuring a short-term return to the pre-disruption conditions. This sub-module will outline main best practices and case studies regarding this area.

V Module. Cyber Resilience.

The security problem in the global economic system is an important issue which large companies and small companies of all sizes should consider. Although many SME owners see cybercrime as a phenomenon that can only affect large companies and have serious consequences only in large or corporate companies. The statistics indicate that small companies as well as large companies are under risk. Therefore, hackers who know that SMEs take much less cyber security measures, prefer cyber-attacks to these institutions, which they see easier, than large-scale companies.

This module's content will cover needs of a BC professional in the fields of cyber threats and risks and the way their treatment integrates to the overall organization resilience framework, together with the rest of the principles of continuity.

The contents of this module are presented in brief below:

- Asset management: This part is related to the identification, documentation, and management of assets during their life cycle to ensure sustained productivity to support critical services.
- Risk management: It is related to identification, analysis and risks mitigation of critical service assets that could adversely affect the operation and delivery of services.
- Controls management: It is related to identification, analysis and management of controls in a critical service's operating environment.
- Vulnerability management: It is related to identification, analysis and management of vulnerabilities in a critical service's operating environment.
- Incident management: It is to establish processes to identify and analyse events, detect incidents, and determine an organizational response.
- Service continuity management: It is related to the ensuring the continuity of essential operations of services and their associated assets if a disruption occurs as a result of an incident, disaster, or other disruptive event.
- External dependencies management: It is related to the establishment of processes to manage an appropriate level of controls that will ensure the sustainment and protection of services and assets that are dependent on the actions of external entities.
- Configuration and change management: It is related to the establishment of processes that ensure the integrity of assets using change control and change control audits.
- Training and awareness: It is related to the development of skills and promotion of awareness for people with roles that support the critical service.
- Communication management: Communication management is related to the coordination of cyber resilience and information security information and knowledge and competence across the enterprise to ensure that all organizational units are performing under a common operating picture.

Online Training Platform CONTINUITY

All these modules will be integrated in an online training platform that will aim to contribute to raise awareness on BC, establishing a better stakeholder consumer communication and

to encourage target groups to implement BC practices in their business models and training paths (Figure 1). The added value of the multiple methodologies and transnational approach result in the development of a replicable and transferable training mechanisms.

The main content that partners aim to deal with concerning the pedagogical materials and through their combination of theoretical and practical parts (based on formal and non-formal methods) will provide:

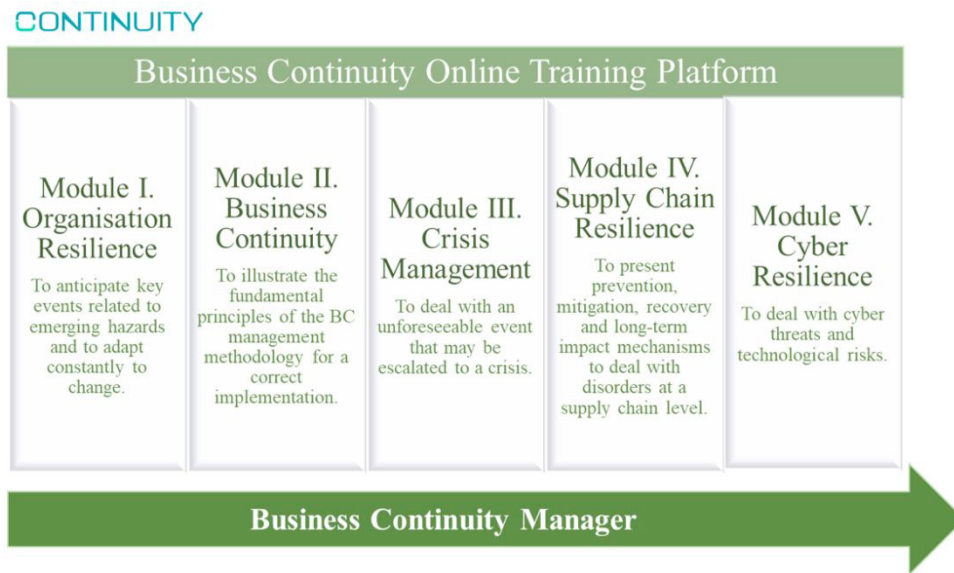


Fig. 1: Business continuity training: educational programme proposal

- An overview of the most current approaches to acquire skills on how to manage BC practices.
- Introduction to basics and regulations of the risk management and BC.
- Knowledge of the different methodologies of crisis management.
- Introduction to the main software available.
- The necessary knowledge to integrate the processes outlined and their management within a management system.
- Skills and competences related to the technical and managerial staff of those companies that have an interest in knowing the different means available to communicate the benefits.

2.4 Benefits and Managerial contributions of the BC Training Innovative Programme

CONTINUITY will develop specific training pathways to facilitate the BC management in a horizontal way, according to the different industrial realities. Besides this, the programme and its associated online platform present the following advantages:

- The training programme will encourage the discussion between professionals interested in the deepening of the BC by fostering collaborative learning. In this way it will also promote inter-pares education, allowing the exchange of good practices in

the field and getting to know BC activities successfully implemented in other realities.

- It will make it possible for learners/beneficiaries to consult and use materials that are easily applicable to their current work positions, work environments and everyday tasks in their companies, encouraging emotional engagement, satisfaction level and increasing their motivation during the training process.
- It will include open, diverse and creative activities that challenge trainers and participants through a combination of methodologies (informal and non-formal) and learning environments (Online Training Platform, Face-to-face Workshops, coaching, etc.) This will ensure a personalised and effective learning process for any type of potential actor despite their academic, professional, cultural or social background.
- There are few training courses or official awards that include all methodologies related to BC and, in particular, an explanation of the future European policy on the standardisation of these processes. All the educational materials will take into account the following existing policies (e.g.: ISO guidelines) and quality standards of the various sectors, but also foreseeing others that will be potentially required at transnational level by the companies.
- The programme will count with experts who are professionals coming from a deep experience on risk management and BC with very different backgrounds

and profiles (e.g. private researchers, project managers, university professors, representatives of non-profit associations, pedagogical experts).

6. CONCLUSIONS

A BC educational programme proposal is suggested in the frame of the European Higher Education Area, based on the main topics of Organisation Resilience, Business Continuity, Crisis Management, Supply Chain Resilience, and Cyber Resilience. BC has to have a relevant component of practice training, and therefore such learning pathways are provided in the educational programme proposal constructed.

As a limitation, it is worth mentioning the broad scope of the resilience and BC areas, what implies that not all the topics and aspects can be covered in the educational programme by the platform trying to configure a living and up-to-date online platform.

Future work will focus on the developing this curriculum in the university courses or masters, in order to meet the demand of the novel knowledge derived from the new normality of the post COVID-19 world. Moreover, further work will focus on creating, nurturing and extending an international CONTINUITY alliance, which will maintain both the concept and the innovative approach adopted to structure the project: academics and companies working together to support and stimulate training processes in BC.

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REFERENCES

- Annarelli, A., & Nonino, F. (2016). Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega*, 62, 1-18.
- BCI (2020a). Coronavirus: Organizational Preparedness - Learnings from our fortnightly survey. Available online in Business Continuity Institute: <https://www.thebci.org/news/coronavirus-organizational-preparedness-learnings-from-our-fortnightly-survey.html>
- BCI. (2020b). The Future of Business Continuity and Resilience. Available online in Business Continuity Institute: <https://www.thebci.org/static/80883ebb-57ae-428b-bd7cdf2b5c29939f/BCI-007e-The-Future-of-Business-Continuity-and-ResilienceSpreadsweb.pdf>
- BCI. (2020c). Horizon Scan Report 2020. Available online in Business Continuity Institute: <https://www.thebci.org/resource/bci-horizon-scan-report-2020.html>
- Bevilacqua, M., Ciarapica, F. E., Marcucci, G., & Mazzuto, G. (2020). Fuzzy cognitive maps approach for analysing the domino effect of factors affecting supply chain resilience: a fashion industry case study. *International Journal of Production Research*, 58(20), 6370-6398.
- Hosseini, S., Ivanov, D., & Dolgui, A. (2019). Review of quantitative methods for supply chain resilience analysis. *Transportation Research Part E: Logistics and Transportation Review*, 125, 285-307.
- ISO 22300:2012. (2012). Societal security — Terminology. Available online: <https://www.iso.org/standard/56199.html>
- Marcucci, G., Mazzuto, G., Bevilacqua, M., Ciarapica, F. E., & Urciuoli, L. (2022). Conceptual model for breaking ripple effect and cycles within supply chain resilience. *Supply Chain Forum: An International Journal*, 1-20.
- Sanchis, R., & Poler, R. (2019). Enterprise resilience assessment A quantitative approach. *Sustainability*, 11(16), 4327.
- Sanchis, R., & Poler, R. (2020). Resiliencia empresarial en época de pandemia. *Boletín de estudios económicos*, 75(231), 501-520.
- Sanchis, R., Canetta, L., & Poler, R. (2020a). A conceptual reference framework for enterprise resilience enhancement. *Sustainability*, 12(4), 1464.
- Sanchis, R., Duran-Heras, A., & Poler, R. (2020b). Optimising the Preparedness Capacity of Enterprise Resilience Using Mathematical Programming. *Mathematics*, 8(9), 1596.
- Sheffi, Y. (2020). Responses to Coronavirus Part Two – Gaps in our Defenses MIT Supply Chain. Available online: <https://medium.com/mitsupplychain/responses-to-coronavirus-part-two-gaps-in-our-defenses-6b149dc2c0ba>
- Zhao, K., Kumar, A., Harrison, T. P., & Yen, J. (2011). Analyzing the resilience of complex supply network topologies against random and targeted disruptions. *IEEE Systems Journal*, 5(1), 28-39.