

“THE ANTICIPATED PROCESS”: PROCESS INNOVATIVE HYPOTHESIS ABOUT SUSTAINABLE MANAGEMENT OF THE SECOND EMERGENCY

Corrado Trombetta*

Università degli Studi Mediterranea di Reggio Calabria, Facoltà di Architettura, Dipartimento DASTEC, Unità di Ricerca TEMENOS.

Abstract

The failures of the past programmes for the second emergency allowed us to characterize, define and value a new process model, that moves 70% of decisional operating activities, or rather the ones referred to spatial and technological request before disaster, using the first ninety days after disaster in order to define the typological and contextual need.

Keywords: Process, Sustainability, Second Emergency

THE HYPOTHESIS

Such hypothesis is based on the process construction of a system, able to build a rescue artefact, reversible for living aims.

Such model, is consistent with the processing of a system and a productive line, meeting the needs of transitoriness and reversibility, characterized by a lot of typological outlets. The declared aim, is a system, planned according to parameters, obtained by the study of sector's experiences, defined on its exigency's invariants by the requisites coming from the transitoriness and reversibility exigencies, and susceptible to create a determined typological demand.

REASONS

The reasons defining the research aim, are different: economic, productive, environmental, and social ones. We noticed that there's an unconscious reticence for the constructive experiences, called "transitory"; certainly, such reticence, has got cultural prerequisites, but also and, above all, economic ones. In fact, the demand absorbing the broader portion of transitory buildings' market, today is represented by the emergency, and involves a lot of "negative" aspects, such as the economic one.

The transitory systems, are consistent mainly with the container or prefabricated buildings, running about relatively low costs of the a minimum standard emergency components, to the higher ones of prefabricated abodes, having a higher living level, or corresponding to the permanent residential building .In architecture, one of the problems to solve, in order to engender the spread of transitory systems, is the

* ctrombetta@unirc.it

economic convenience of such interventions, both in the case of living components and for a disaster, for tourism, for fly-wheel ones. Etc

The high costs of transitory intervention are caused by different elements; the main ones are: the demand 's fragmentation, the systems' stocking, the production's costs. The parameters regarded in the research are the following ones:

the demand 's fragmentation: the research of transitory residential systems is generally connected to particular exigencies, such as emergency, transitory welcome structures in places having environmental bindings, buildings without licence, temporary welcome structures for people occupying recovering or mantainment buildings etc.

The fortuity and the peculiarity of every kind of listed demand, don't allow to the different productive structures to have a solid and steady demand in the time(impossibility of economies of scale)

THE MODEL

The model described, wants to provide an answer to this problem, through a variety of outlets, whose productive process are not of the same quantity, and giving a single product process, according to the fortuity of the demand.

System's stocking: the temporal fragmentation of the demand, entails the problem of stocking systems and the components in the interval of time before and after the demand, whatever its nature is.

The model proposed, wants to restart the line production, and restore the possibility to re-insert the system or its components in further productive cycles. The system, can be used once more on its whole, for the same aim, or for a different one, through the creative stage, expected in this process.

Production's costs: the offered solutions by market in the buildings' scope, are generally represented in the cases by closed systems, whose productive lines difficultly absorb variation, and, when they do it, spending a lot of money.

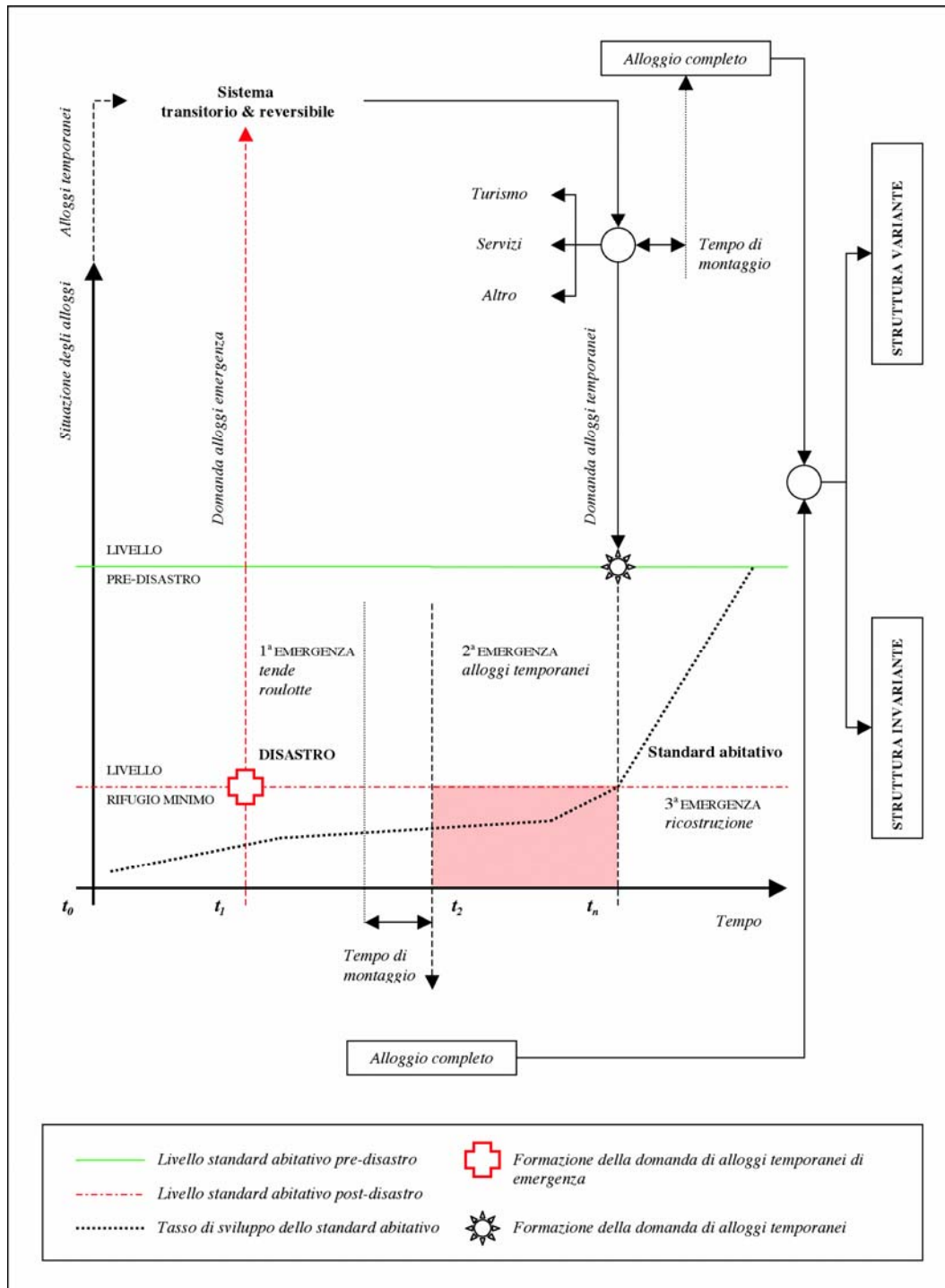
The proposed system, based on the features characterising the current production, propose an open system; moreover, it's based on the unique line of creatable production.

Enviromental impact: the building sector shows the higher environmental impact level among the anthropic activities, both in the exercise stage and during all the life cycle ,from the recovering of sources to the abandon of the artefact. Although some of the detectable negative effects are connected to buildings, they can be partly due to the object 's permanence character and the connected constructive techniques. The permanence of an artefact as abode, is an invasive intervention for the environment, as for physical, sensational aspects and sources balance, together with the impact coming from function activities, connected to the productive process, the row materials, the convection of the same through poisoning procedures, the creation of a yard and the connected manufacturing, till the abandon and waist disposal.

Phisical impact: the "traditional" buildings, are placed with invasive artefacts; in fact, foundation's buildings suppose digging works and land movements, meaningful altering soils' structures (resistance, permeability, etc).

The proposed model, being transitory and reversible, will solve the problem of the land attach for the exigency of soils' new-naturing (areas of emergency settlements, environmental binded tourist areas ,etc).

Sentational impact: the environmental bindings existing in those areas, characterised by the presence of natural and artistic beauties, in many cases make them extraneous to the tourism, because they lack adequate receptive systems.



The model proposed can obviate to the problem, realising temporary receptive structures, not altering in a permanent way the places' aspect, and whose image can be inserted in the reference context.

Impact sources: the field of building is often defined with the word "eater of energy", because it requires a great quantity of energy for its running both for the hygro-thermo comfort of the confined spaces, and its transforming of raw materials and its execution.

The system proposed, gives the possibility to adequate the sources' employment through the possibility of re-use or recycle the parts of the system, thanks to the techniques of dry assemble, that allow the right de-construction of the system and the employment of its compartments.

Social Reversal of the proposal: the existing dichotomy between the traditional architecture or the "permanence", and the transitory architecture, is often solved in a qualitative judgement, positive and consolidated towards the first one, and extremely negative if addressed to the second one, on the basis of cultural prejudices, mainly caused by users' dissatisfaction, and, in particular, of a transitory typology, the emergency compartment. The vision leading the artefacts project for the transitory living, has operated more through the "provisory" parameters, than the temporary ones, saving its worse aspects. Thinking to the transitory project, means thinking to the temporariness of the demand, that's the change determining its running, together with psychological reasons, exacerbated in the case of emergency intervention, connected with the exigency to personalize and catching the object.

Living levels: the transitory living systems are characterised by a minimum living level, dissatisfactory even in contexts of emergency. The necessity to improve the standard of such system is connected with the possibility to extend the usage destination and fostering their spreading, even outside the traditionally recognised contexts.

The system wants to re-build the exigency classes of the residential intervention, according to the transitory parameters, in order to process an artefact, able to provide services compatible with the expected interval of time, and the usage chosen destination.

Flexibility: with the variation of users, the intervention becomes obsolete, during the stage of exercise. In a closed system, such as the one represented by the completeness of available solutions for the transitory living, such event is solved by the "old age" of the artefact and its dismissing, and the consequent social and economical dislikes.

The proposed system wants to face the exigency and service' problem, not in a static approach, but in a dynamic one, according to the variation of its exigency stage, and through an implementation system of the objects' services.

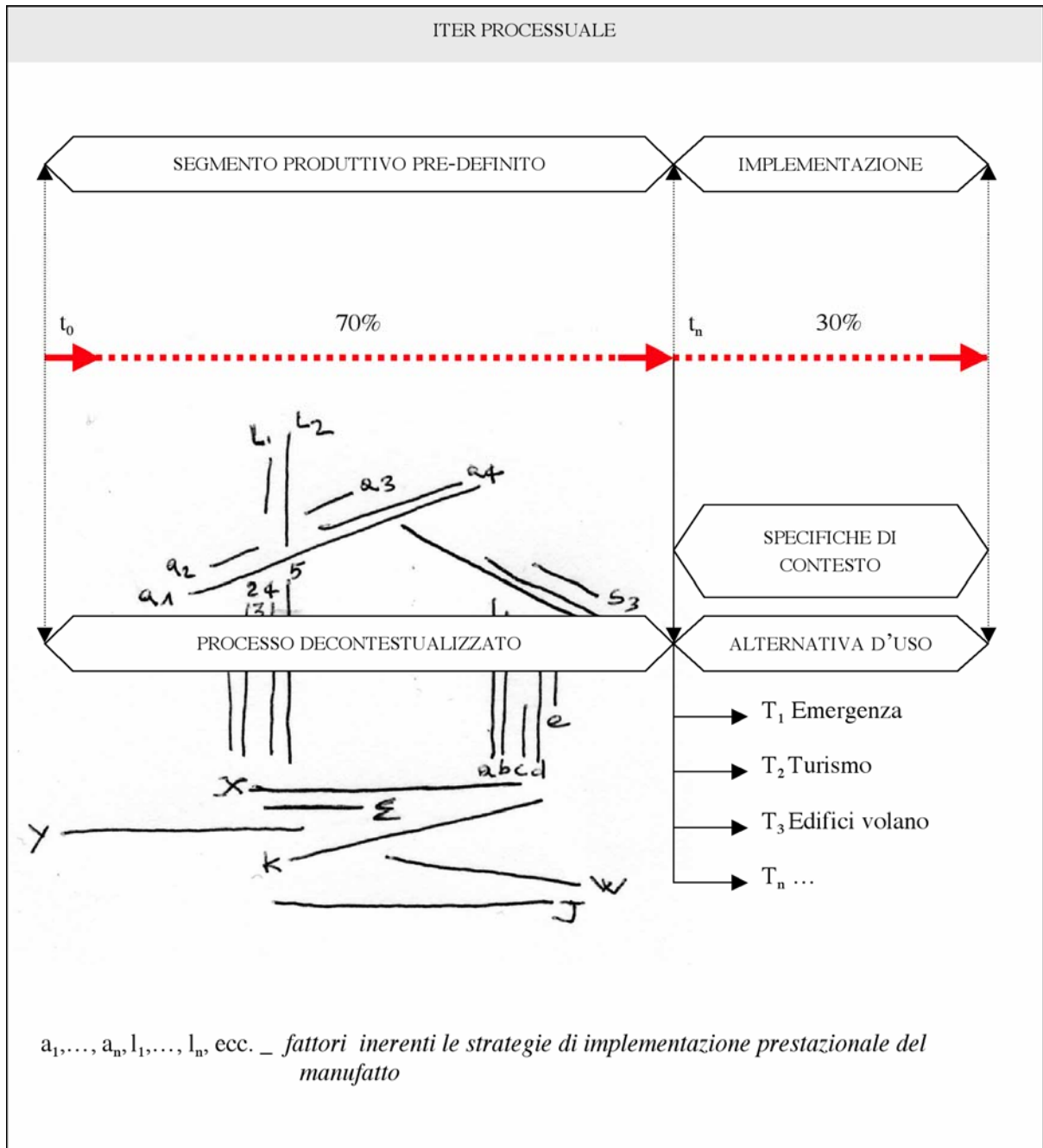
Partecipation: the user 's refusal of this particular kind of building, is often caused by the image's homologation. In fact, the production standards, make user very difficult recognising and catching processes.

The system proposed, planned according to the reversibility parameters and opened to the current production, allow to the user to participate effectively to the handmade creation, the project's choices and the active presence it he execution stage.

| Tab.Q.E | QUADRO ESIGENZIALE | | | |
|------------------|--|--------------------|--|--|
| | INVARIANTI ESIGENZIALI (Manufatto Transitorio & reversibile) | | | |
| Fase di processo | Classe di requisiti Connotanti | Classe di esigenze | Fase di Pre-uso | Fase d'uso |
| Programmazione | Reperibilità delle risorse | Specifica | Attitudine del sistema ad essere realizzato attingendo dalla produzione corrente | |
| | Trasportabilità | Specifica | Ottimizzazione del rapporto Volume peso | |
| | Manovrabilità | Specifica | Compatibilità con mezzi di sollevamento e movimentazione ordinari | |
| Progettazione | Funzionale | Fruibilità | | Attitudine del sistema a modificare le caratteristiche spaziali e funzionali nel tempo |
| | Dei sistemi | | | |
| | Controllo dell'impatto ambientale | Specifica | Attitudine del sistema a ridurre l'impatto ambientale attraverso sistemi costruttivi e materiali compatibili | |
| | Riduzione del livello di invasività | | | |
| Esecuzione | Rapidità di installazione | Specifica | Attitudine del sistema a ridurre i tempi di assemblaggio in opera | |
| | Semplicità tecnologica | | Adozione di tecniche e componenti a bassa complessità | |
| | Assemblabilità | | Riduzione del numero di giunti | |
| Gestione | Manutenibilità | Gestione | | Attitudine del sistema a ricevere agevolmente le operazioni di manutenzione programmate |
| | Durabilità Programmata | | | Attitudine del sistema e delle sue parti a mantenere un comportamento prestazionale soddisfacente lungo il periodo di esercizio stabilito. |
| | Stoccabilità | specifica | Attitudine del sistema e delle sue parti ad un razionale deposito. | |
| Dismissione | Decostruibilità | Specifica | | Attitudine del sistema ad essere smontato nei suoi elementi costituenti senza compromettere il livello prestazionale delle stesse |
| | Riciclo/riuso | Specifica | | Attitudine del sistema ad essere riutilizzato o all re-immissione delle sue parti in un nuovo ciclo produttivo. |

QUADRO ESIGENZIALE(Manufatto Transitorio & reversibile)

| Classe di esigenze | Classe di Requisiti | Requisiti | Specifica |
|----------------------------|---------------------------------------|---|--|
| Sistema aperto | Reperibilità delle risorse | Coordinamento dimensionale | Attitudine del sistema ad essere realizzato attingendo dalla produzione corrente |
| | | Stabilità dimensionale | |
| Mobilità | Trasportabilità | Adattabilità ai mezzi di trasporto | Ottimizzazione del rapporto Volume/peso |
| | Manovrabilità | Adattabilità ai mezzi di movimentazione | Regolarità dimensionale e morfologica dei componenti |
| Leggerezza | | | |
| Compatibilità ambientale | Controllo dell'impatto ambientale | Sostenibilità delle risorse | Attitudine del sistema a ridurre l'impatto ambientale attraverso sistemi costruttivi e materiali compatibili |
| | | Riduzione dell'impatto delle opere di installazione | Attitudine del sistema di attacco a terra di adattarsi alle specifiche fisiche del contesto |
| Esecutività /posa in opera | Rapidità di installazione | | Attitudine del sistema a ridurre i tempi di assemblaggio in opera |
| | Semplicità tecnologica | | Adozione di tecniche e componenti a bassa complessità |
| | Assemblabilità | | Riduzione del numero di giunti |
| Gestione | Manutenibilità | Riparabilità | Attitudine del sistema a ricevere agevolmente le operazioni di manutenzione |
| | | Sostituibilità | |
| | Durabilità Programmata | | Attitudine del sistema e delle sue parti a mantenere un comportamento prestazionale soddisfacente lungo il periodo. |
| Stoccabilità | Scomponibilità del sistema | Impilabilità | Attitudine del sistema e delle sue parti ad un razionale deposito. |
| | | | |
| Reversibilità | Decostruibilità | Tecniche di giunzione non distruttive | Attitudine del sistema ad essere smontato nei suoi elementi costituenti senza compromettere il livello prestazionale delle stesse |
| | Riciclo/riuso | Integrità morfologica e dimensionale | Attitudine del sistema ad essere riutilizzato o all re-immissione delle sue parti in un nuovo ciclo produttivo |
| Sicurezza | Stabilità | Resistenza ai carichi | Attitudine del sistema a resistere ai carichi da neve e alle sollecitazioni come quelle esercitate dai venti |
| | | Resistenza alle sollecitazioni | |
| | Protezione dal fuoco | Resistenza al fuoco | Resistenza al fuoco ed assenza di gas nocivi da combustione |
| | | Assenza di emissioni di gas nocivi | |
| Protezione d'utenza | Regolarità morfologica dei componenti | Utilizzo di componenti e materiali innocui per l'utenza dal punto di vista della tossicità e della morfologia | |
| | Impiego di materiali non atossici | | |
| Benessere | Termoigrometrico | Isolamento termico | Attitudine del sistema a garantire condizioni di temperatura e umidità degli spazi confinati, compatibile con la destinazione d'uso |
| | | Ventilazione | |
| | | Controllo della radiazione solare | |
| | Acustico | Isolamento acustico | Attitudine del sistema a ridurre la produzione di rumori all'interno degli spazi e ad ostacolare la propagazione di rumori provenienti dall'esterno. |
| | Visivo attenzionale | Controllo del livello di illuminazione naturale | Controllo dei livelli di illuminazione e di introspezione tra ambiente interno ed esterno. |
| | | Controllo del livello di illuminazione artificiale | |
| | | Controllo del livello di introspezione | |
| Fruibilità | Funzionale | accessibilità | Compatibilità dimensionale e costitutiva rispetto alle funzioni ospitate |
| | | Dimensionamento degli spazi | |
| | | Dotazione di attrezzature | |
| | | Arredabilità | |
| | Dei sistemi | Affidabilità | Affidabilità dei sistemi meccanici e impiantistici |
| | | Comodità d'uso | |



THE PROCESS

The concepts of transitory and reversibility, related in this paper, allow to detect some analytic categories, which are the real exigency classes; sometimes, we must add or overlap the ones detected by the UNI rule, in order to define the reference plan for an artefact's transitory and reversible project.

The word "transitory", is referred to the "temporary" one, more often employed in the paper of this sector, because it involves the complex variety of usage destinations. The concept of reversibility, is a logic and methodological support to the global conception of the intervention. The consideration of such factors, is the detection of

some indicators, both in the process and in the project and it's full of transitory attributes and reversibility:

Economical aspects, dry assemble, standardisation, transport, supporting

The first result of this mediated approach, is the necessity to define the different exigency classes, according to different parameters for the temporal placing of the activities in the project. In fact, the realisation project of an artefact introduces new innovations of complex comprehension, inside the same project, imposing the regarding of constitutive stages (planning, projecting, execution, management, dismissing), sensing the aspects of transitory and signing-up.

THE NEW EXIGENCY OUTLOOK.

The quantity and the quality of effects produced in the contexts and in the process' articulation, in the scope of the transitory project, are the basis of the mutual articulation of the exigency outlook, in the field of another research, providing an exigency classes' definition, different according to the operations' temporal placing, distinguishing the pre-usage stage from the usage one. The requisites, taken off the analysis of the study-cases and realised in the chapter before, provide a quite clear outlook of requisites connoting the examined kind, and their placing in the stages of the process and the exigency classes in the rule.

THE TEMPORARINESS DEFINED THROUGH THE EMERGENCY.

The exigency outlook of reference, provide the exigency's invariants, typical of the intervention, because it meets the needs of the super-transitory categories analyzed and the reversible ones.

Such invariants, represent the requisites of the object of study, beyond the traditional kinds. The detection of such aspects, is not sufficient to build a reference outlook of the problem, above all for the correspondence between the product and the process' aim.

The declared aim, is setting a balanced process on a production line, whose partial result is a product defined for the 70%, by the reversibility and the transitory part and for the final one, the remaining percentage, despite the alternative of usage and the context. An approach of this kind requires the consideration of binding's conditions, typical of the usage's alternatives.

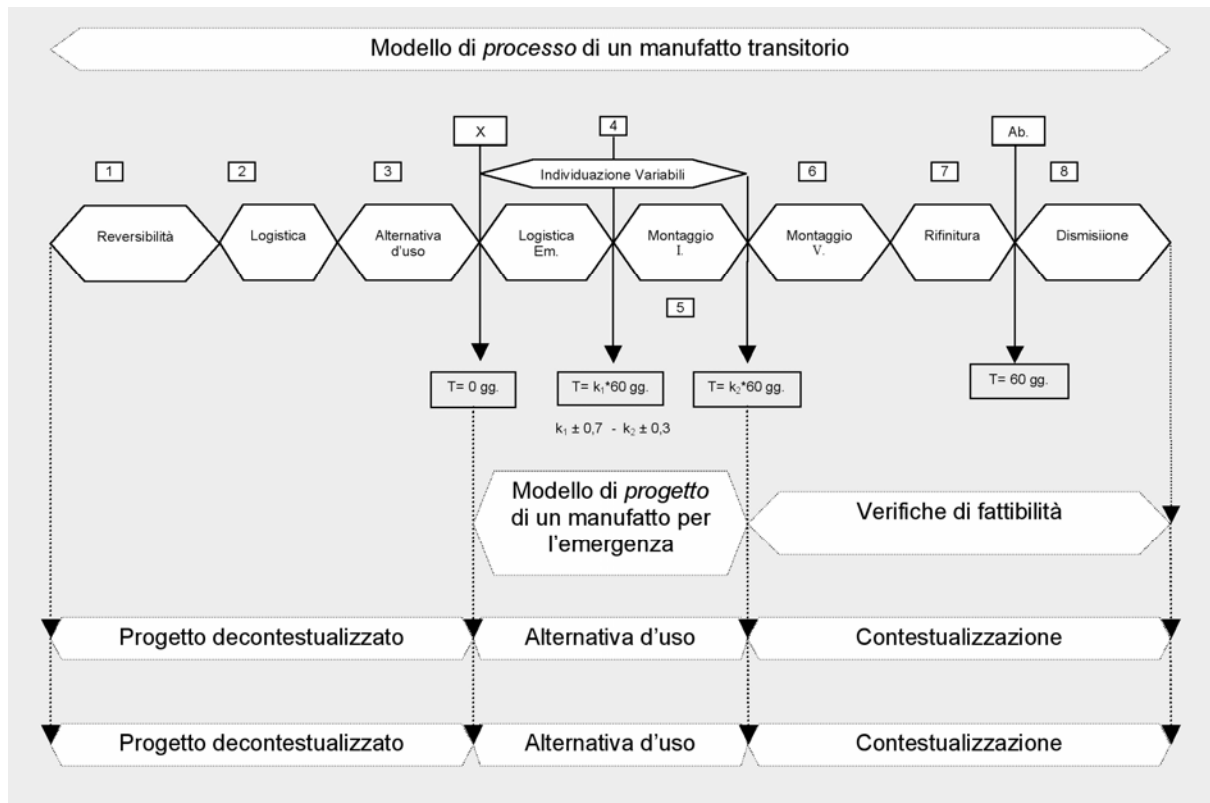
But, while the peculiarities of kinds, such as tourist structures or fly-wheel buildings, till the yard's structures are easily leading to the categories (exigency invariants), the kind of the emergency is characterised by more restrictive bindings, connected to peculiarities of the demand, to the users and the process.

So, it's logic and correct for this paper to have a compatible reference outlook, and to keep in mind the analysis of this particular kind.

The declared aim, is a system, planned according to parameters obtained by studying the experiences of this sector, defined by the requisites coming from the exigencies of transition and reversibility, and susceptible to the arising of a determined topologic demand.

The process segment, derived by the exigency's invariants, is even a first product level, not in the context of a typological point of view, while the following one is the

implementation of the system's services aspects, through the functional and technological integration, made on the specific basis of the demand.



REFERENCES

Bologna R.(a cura di), (2002) La reversibilità del costruire, L'abitazione provvisoria in una prospettiva sostenibile, Maggioli editore, Rimini.

Grasso M.R. (2006) La reversibilità come strumento per la gestione delle risorse nel progetto di architetture transitorie. (tutor: Trombetta C.) DASTEC, Reggio Calabria.