

Manufacture / Relational modes: Robots and Sustainability

Rinaldo C. MICHELINI di SAN MARTINO

DIMEC - University of Genova - Italy

**Corresponding Author: Rinaldo C. MICHELINI di SAN MARTINO, DIMEC - University of Genova - Italy*

ABSTRACT

The text describes the human civilization as by-product of manufacture and of relational modes, the ones linked to the technology revolutions, the other ones to the collective breakthroughs. The civilisation is adaptive trim of the galactic environs, to provide the conscious account of current and forecasted occurrences and to turn wilderness in friendly courses. The technical and political innovations appear human intelligence results, but they plausibly are, as well, issues of the cosmic rationality or heavenly wisdom, believable cause of the trimming. Then, robots replace men, to run political deployments and technology innovations, aimed at wellness and progress or sustainability and rescue. The ecologic safety ensues from robotic equipment, with origin in intrinsic or absolute knowledge via robotic aids.

Keywords: *civilisation awareness-human intelligence: cosmic rationality/heavenly wisdom – robot technology - artificial energy/intelligence and synthetic hands/minds.*

INTRODUCTION

The humans are earth anomaly, providing agentive and thinking ability to an apparently self-sufficient galactic surrounds, which, otherwise, seems already enjoying total cosmic rationality or heavenly wisdom.

The activity sequences are peculiarity of the living beings, which can operate on the surrounds, modifying the events. On the earth, the agentive abilities entail search of food (to survive) and hunting for partners (to reproduce). With men, the planning has to include collective settings of groups, creating families (having parental tasks) and communities (via interpersonal engagements).

The human design and planning appear, at least, locally, altering the universal trends, with purposeful changes, replacing wilderness, by manmade civilisation.

The focused variations look as if trained hands/minds have action on the material backdrops by aware tasks, selected for improved wellbeing.

The men have robots replacing their activity and reasoning courses, with equal effectors. When looking at men, the actions on the surroundings identify manufacture modes; the inter personal behaviours give relational modes, with people allocation to different skills and knacks. The

civilisation ensues from the modes' mixing to widen friendliness and comfort, having:

- manufacture modes, with intentions building clothes, houses, etc., under ecology safety;
- relational modes, with behaviours allowing communication, trade and authority setups.

The production of personal or collective artefacts dates back to archaic ages, when started the garbed societies, inhabiting manmade dwellings.

The technical innovations describe the trends, with the series of technology revolutions, to mark leaps forward:

- <clothing revolution>: archaic layout of garbed societies, living in aptly built houses;
- <agrarian revolution>: old structure of settled societies, fed by breeding and farming;
- <industrial revolution>: coming setup of open societies, aimed at robot-aided being.

The interpersonal changeovers are even trickier, supplying features, which develop abstract virtues, languages coding concepts or legality managing people or authority governing communities, say:

- to communicate, inventing dialects /languages and shaping civic/social modes;

Manufacture / Relational modes: Robots and Sustainability

- to transact, negotiating barter and deals for exchange, business and revenue;
- to consolidate, coordinating and organising people's assemblies, under rulers.
- coats and furs are fit protection against cold climate and adverse conditions;
- resort to cloth and fabric is invention, allowing dresses, suits and ornaments.

The technical inventions and the political settings happen opening peculiar prospects, not surely obvious, if we consider the current backdrops, consistently matching the existing galactic layouts. The plausible readings postulate cosmic rationality or heavenly wisdom, causing or inspiring the manufacture and relational modes, because having origins already written as galactic instructions or holy directives.

The inner or upper motivation do not need justifying reasons, because absolute data, with galactic foundations, previously included in the architecture of the universe and timely occurring as singularities (stochastic events or miracles), further to the backing deterministic course. The overall description assigns composite architecture to the reality, having back stage sturdy scenario, with happenings, to start qualified upshots.

The biology/cognizance events on the negligible planet earth, perhaps, are qualifying upshots. Their relevance is appropriate not because of the anthropic aspects, rather because of the inclusive effects: we shall not stop at anthropoid traits, when we identify with hands/minds' abilities, what carried over by front-end human actors in view of the civilisation.

The meaning of happenings has to inspire to anthropological construal, but, immediately, has to understand that the awareness of current offstage and comprehension of extant venue has to devise sceneries that are more appropriate: goals and functions shall be at universal rank, not at human level. The robot-like equipment has to enable cosmic rationality or heavenly wisdom, while the human intelligence only plays the role, rousing the overall problems.

MANUFACTURE MODES

The manufacture modes symbolise how clever actors profit by artefacts, gotten from raw stuffs by wily jobs. The sequence of acts/facts is amazing issue; still, men are only animals wearing outfits and apparels for comfort and erecting shelters for security. The anomalies have unknown beginning: we are aware of steady results, when men, mostly lost body hairs, by permanent resort to drapery and dressing. That stage presumed the talent to assemble furs and coverings; it looks at skills aimed at manufacture labour towards:

The skin covering, necessity or opportunity is possible to people making adroit use of hands, according to properly designed procedures, after inventing the textile production, from more or less intuitive original threads. The story, written this way, tells that manufacture starts from the want of fabrics: reasonably, we may expect that the manufacture modes are human talents, or, more plausibly, natural features or spiritual gifts, already present in the universe and, possibly, enabled by robot-like gears. The <clothing revolution>, then, is inner/upper driven event, parting the way to civilization by technical handouts. The <agrarian> and <industrial> revolutions include purposeful technical helps: creation of foods; enhancement of efficiency:

- the agrarian revolution: men orderly accomplish farming and breeding operations;
- the industrial revolution: men exploit energy and physical sources for enhancement.

The agrarian societies replace the nomadic tribes, leading to land splitting and national countries. The segregating by native languages is bottom up possibility; besides;

- the manufacture modes typify by speciation, aimed at multiple arts and crafts;
- the industrial revolution brands by controlled efficacy of activity organisation.

The industry, originally, is abstract condition, linked to the neat efficiency or zeal; then, it turns in more conscious trait, including controls on the processes and after effects. The manufacture modes directly entail actors' knacks and drills, making possible conceiving and effecting artefacts.

The three-revolution run keeps parallel resort to material resources, extricating inventions never conceived by other animals, for individual benefit (agrarian produces) or common usefulness (outfits, dwellings, etc.), finally properly addressing the business proficiency by activity planning and making organisation. The technical innovations happen having universal backing, with discoveries promoted by cosmic rationality or heavenly wisdom, also if the human intelligence is frontend supplier.

The civilisation aims at replacing backwoods, by men friendlier settings, moving from aware assessment of the extant occurrences and forecasted fruitions and looking after possible improvements by through use of technical innovations and subsidiary utilisation of political layouts. The creation of wellbeing is intricate intent, requiring security in the existence prospects and comfort for the domestic projections. The galactic environs do not worry about the past or the future, without memories or outlooks, the human adventure adds the consciousness of the on process occurrences and forecasts, acquired by cognizance processes. The progression incongruity is, perhaps, more of the insentient planetary system, since the awareness assigns meanings and comprehensions to events and facts. On these considerations, cognition and consciousness appear upgraded situations, compared to passive change and determinism: the galactic information, to be description of highly cutting-edge environments shall not confine to the spot biology/cognition evets (and human adventure) and it needs including similar other understanding and intellection aptness, with linked discerning and judgment capabilities. The cosmic rationality or heavenly wisdom is, thus, necessary option, to occur parallel to human intelligence.

Manmade Items

The galactic reality has quite concrete consistency: the physical laws benefit from total truth, which supports the technology innovations, directly applied to material stuffs, transformed in useful items. The creation of the necessary supplies, goods and foods, modifies along the ages, showing:

- home manufacture, by means of spread out domestic and local textile and building jobs;
- country produces, using husbandry and upbringing jobs, as diversified fonts of foodstuffs;
- mass production, with economy of scale maxi sing productivity with minimal item cost;
- customers' satisfaction enabling economy of scope, optimising the return on investments;
- ecology sustainability, with circular planning, aimed at sources' recovery and depollution.

The deliveries denote the switch, from early manufacture modes, to advanced industrial

methods, with inclusion of the indirect conditioning constraints. The home production does not operate in separate shops, in which the transformations are key activities; initial agriculture brings together large workforce with low unit output and lately only, specialisation aims at efficiency, via chemistry and mechanisation. Mass supply remains effective policy, if low price foods or clothes find purchasers; if over-delivery leaves unsold pieces, gain turns to loss; efficiency requires new enterprise's planning. The customers' satisfaction needs flexibility and adaptive processing lines; the robotics starts making its on line entry, moving from manufacture fields, where artificial intelligence made evident the returns in investments. Computation aids and robotics, then, moves to management, business, administration, etc., tasks, showing that all data processing services profit from the <industry 4> practices, due to on process monitoring and control jobs. Finally, <industry 5> advises using robotics for reverse logistic and rescue duties. The <industry steps> exemplify the robotic trail:

- <industry 0>, with productivity maximally obtained by extra power and artificial energy;
- <industry 1>, with making given by on-line workforce and scientific work organisation;
- <industry 2>, with throughput settled by fixed automation and special purpose trapping;
- <industry 3>, with production done by robotic, aimed at adaptive planning and delivery;
- <industry 4>, with provision of products, functions, services or any other robotic deeds;
- <industry 5>, with running of all tangible supplies, under eco-sustainability constraints.

The manmade artefacts cover wide sorts of items, from land's produces, to personal wears and homes with linked equipment and furniture; the men's necessities include many objects and assemblies purposely designed to satisfy the individual wishes or collective tastes. The goods' selections typify public and private requests, since the civilisation collects several styles, not easily unified: innovation and discoveries diversify because of their universal backing, not simply limited to the human intelligence fantasy.

Manufacture goals

The manufacture modes benefit from clever changes of human actors, eventually, inspired by inner or upper causes, if we think that the technology revolutions show access to absolute galactic information by such means of the detected physical law.

The robot's programming duplicates men's instructions, but, as well, those inner or upper causes, leading to civilisation that we know. The guess has spot validations, when we acknowledge the manufacturing or the agricultural cues, to obtain helpful artefacts or foods. Yet, robot innovations also entail that the industrial revolution requires paradigm changes: diligence and scientific planning are optimal schedule for manufacture; more data are crucial, if tasks implicate complex activity plans, the industry shall join with skilful tricks, face to changing requests. The situations lead to:

- decision logic off-line fixed by scientific criteria, plus on-process diligent fulfilment;
- on-line planned selection by robotic equipment, plus able check of the effecting kit.

The robot option tells that the industry is profitable chance: manufacture joins scientific agenda to zeal or intelligent plans to sets of extra constraints (starting from customers' satisfaction); different incumbents are readily possible, since the external conditions are on process managed by aptly planned robotic devices. With <industry 4>, robots widen processes and transformations and allow adding online tests. Now, indeed, the robotics looks universal reference, to make possible the civilisation deployments. The <industry 5> aims at the robot's rescue, using the supplied monitoring and control functions, to balance the extant depletion and pollution by equivalent offsetting measures. The guess is challenging; in general, the robot helps, using monitoring and control functions, allow series of chances, such as:

- even manufacture areas, developing many instances, unmanned factory included;
- lifelong maintenance and management of delivered artefacts, by on-process acts;
- domestic upkeep and domotics, with overseeing instrumentation and operations;
- communication running and repair, with service coverage and executive handling;

- facility provision and regulation, with real-time supervision and practical controls;
- utility distribution makeup, granting steady supply and enduring manoeuvre aids;
- logistics supervision, performing monitored overhaul, with sure peripheral bargain.

The example data structured surrounds profit of intelligent planning, having on-process tools, aimed at updating goals. The information intensive frames have on-line management, with decisional togs, adapting the overseen processes. The deciding logic benefits of artificial intelligence, closing planned reasoning steps by synthetic doings: robots play full work cycles, replacing human agentive-and-rational jobs. The close tells looking at intelligent information broad <industry> courses, distinguishing basic backdrop logics

- deterministic information up-keeping: work cycle running, with off-process control;
- intelligent information management: task ruling, using on-process decision-making.

<Step 4> gives power to <industry> paradigms, once recognised to own active-and-intellect skills, in view to operate and to control, as it is the case when men operate.

The robots possess abilities to fulfil multipart men's tasks or other duties, whether designed for them: <industry 4> is challenge for today engineers, open to the inventions improving our surrounds. The <ecology> is hot arrival: decay and effluence are side effects, piling up waste and contamination, <industry 5> become necessary requirement, making compulsory rescue and reverse logistics.

From engineers' viewpoint, <step 4> and <step 5> differ because of goals and, notably, because now these are unavoidable, with worldwide essential plans. The cooperative intelligent business is awkward issue, hard to establish on merely technical instances, thus, deserving further analyses.

RELATIONAL MODES

The human oddities do not stop at the material interface, with the idea to use and abuse of the extant stuff according to the personal will; they repeat at the interpersonal range, when usage/exploitation turns in fact, having inner/upper truth or decided faculty, due to:

- the existence of natural constraints, already stated within the <cosmos' information>;

Manufacture / Relational modes: Robots and Sustainability

- the assignment of the specific compulsions, correctly settled as heavenly regulations;
- the agreed instructions enacted by the community, for the right everyone's conduct.

The relational modes develop with allotted top down or bottom up reasons; they progress to create bonds at three ranges: communication (language), trade (exchange) and authority (headship), generating political arrangements for the communities, with local solidarity and outer antagonism:

- the open intercourse: colloquial links of parental/friendly approachability interfaces;
- the market format: public endorsement of negotiation determinants and statements;
- the governance setup: official enacting of administrative regulation, with cogent force.

The political revolutions modify the existing natural condition as the technical innovations: both changes show civilisation discoveries, replacing wilderness; these appear to be human direct effects, as the cosmic or heavenly causes are, possibly, just hidden hypothesis. The relational modes offer suited details:

- the civilian constraints, specifying lawful behaviours and forbidden activities;
- the business tasks, detailing market regulation and defining money courses;
- the official onuses, stipulating lands' exploitation and crafty empowerment.

By relational modes, personal, collective and official bonds define, each time, allotting the behavioural tenets by abstract thoughts. The communication ratifies written/spoken idioms by drawn/vocal symbols, with tied encrypted meaning; the trade legalises exchanges by suitable financial transitions; the authority authenticates the public management and administrative conventions.

The languages build on abstraction and encrypting ways; the private and official structures are subtle topic, remaining factual depiction, when provisional setups shape by pace wise interaction steps. The development requires prior picks and balanced closes, but remains at contingent worth, unless total natural or spiritual backdrops appears credible.

The bottom up contingent course is simpler view. The human species, at birth, needs initial nursing and tutoring phase, during which the

baby learns to interact with parents and with surroundings; the period is cognition bases, creating the mind worlds by imagination, connected to experimental perceptions, offering insight about the reality. The relational modes (not less than the manufacture ones) keep the ambiguity in the cognition foundations: the political setups and technical inventions enforce careful inquiries before any decision on their classing. The total cataloguing of the physical laws helps addressing the choices in several technical domains; the political asset sorting is more confusing: bottom up cognizance leads to contingent knowledge and the switch to total pictures has to analyse the overall political formats, more than exploiting the aspects of the reality. The relational frames, indeed, appear developing on bottom up/top down styles, aimed at abstraction/encrypting of knowledge or at the political architectures of the governance structures. The market or finance and the headship or sovereignty are intricate inventions, justifying the existence of apriori causes, with cosmic/heavenly origins.

Political Formats

The galactic frame has quite abstract orderliness, at least, once we develop our scientific knowledge and we identify what happens around us by the laws of the celestial mechanics and atomic physics. The masses, charges and vector fields or the particles and waves' models describe every thinks, giving exhaustive details and coherent explanations. Imagination and fantasy cannot suffice to create details and coherence; the, the huge amounts of galactic and atomic information appear providing suited total elucidations. The approach enjoys large consent and it standard reference, when dealing with the found physical laws. In earlier ages, the faith in transcendental principles enjoyed absolute truth, justifying the extended reference to <Grace of God> sovereignty and similar other certainties. We shall not discuss those convictions; we explore them, to obtain hints on how opinions and faiths are relevant in establishing the human societies.

The political beliefs build on series of behavioural principles and situations that affect the individual and collective life quality, in view to choose duties, tasks or jobs of the current engagements. The politics hinge on persuasions, but require verdicts, compelling the connected accomplishments:

- the interpersonal obligations, collected as private rules, for the impartiality regulation;

- the economic foundation, inventing market and trade options, to simplify goods' supply;
- the teamwork establishment, prospecting manufacture effectiveness by standard tasks.

The relational modes show the communal infrastructures have several implementation ways, starting from the voluntary consent to the payed service or the authorities rule. The three-range setup has multiple explanations, even if the inner/upper reasons are straightforward guess in situations, such as:

- outgoing dealing, involving friendship agreements and unpaid covenants;
- contractual links, presuming private law obligations and promised leaflets;
- imperative bonds, rooted in supreme edicts, engaging the all communities.

The political arrangements, as already noticed, enjoyed of the holy backdrop, for a long while, as if the money and kingship need otherworldly origins. The natural explanations develop with Darwinism, in which gene selfishness, personal egoism, group solidarity are nation rivalry are biasing effects, showing how some political formats establish. The actual origins of the relational modes are difficult to discriminate: it is better devising plausible justifying prospects and accepting the different possibilities as potential issues at parallel worth, without choosing between in fact alternative solutions.

The political organisations are amazing abstract constructions if we consider the animal natural rallies. The bodily societies need depending on the biology and cognizance phenomena, when both apply to living beings: gene evolution and meme fruition are combined effects yielding to human intelligence; however, if cosmic rationality or heavenly wisdom is origin of the civilisation, the relational modes equivalently operate via synthetic hands/minds, also when no anthropic images exist. The total metaphors giving the civilisation features aim at comparable rational/wise attainments, without attention about life/knowledge settings, as far as agentive/thinking outcomes develop, supplying equivalent deed/awareness results.

Civic/Social Orders

The bottom up way accepts educational practices, moving from them with continuity. Parental teaching typifies men: the relational modes start at primal colloquial range, with

communication (idiom), inventing formal, lawful and official courses, by market (trade) and authority (governance). This brings to define fit civic modes, to allot the behavioural rules of citizens. The higher formal layers entail interpersonal consent on how reading the ethics' doctrine of the community.

The civic modes have self-sufficient layouts, once acknowledged comprehending the specified links, at the requested level. The tacit hierarchy tells that the basic level involves agreement on how coding items (objects, actions, feelings, etc.) by sounds/symbols, at interface. The message passing convention requires abstraction, with shared codes to simulate/emulate real items, by thoughts. The communication brings to vernacular architectures, with intuitive structures, since objects, actions, feelings, etc. shall follow idiomatic progression, keeping one-to-one coherence with the transmitted notions.

The top down way believes in inner/upper causes for the relational modes, already active in the reality: e.g., biology follows genome instructions; cognition belongs to spiritual domains. Monism includes meme fruition in gene evolution, by software data. Dualism adds holy spheres, to manage the intangible thoughts. By monism, the galactic information is (hidden) immanent attribute of matter, ruling the transformations.

By dualism, the absolute knowledge is the transcendent part of the reality, parallel to the physical one. In monism, the men cognizance gives access to galactic information, quality, used as intrinsic knowledge. In dualism, the men develop contingent knowledge by cognition and enjoy absolute knowledge if heavenly access can open. The all brings to share social modes, allotting behavioural rules to citizens, by inner/upper reasons, already stated at the universal range.

The social modes avail of the quoted qualities, if immanence rules the all; transcendence is supposition, with social modes directly enacted by holy laws. Without blissful backings, monism enjoys preferences: the social modes seem well linking to Darwin's guesses of evolutionism. Yet, the starting singularities remain marvellous happenings: biology and cognizance need tricky accounts, mitigated, perhaps, entailing factice dualism or equivalent claims, offering only pace wise relational construction of contingent knowledge.

In the recalled hints, the contingent civic or the total social modes have equal functions and, apparently, cannot distinguish, unless in regards to the relational model, a posterior result or a prior aspect. The tricky mismatch, as with manufacture modes, entail balancing the human skills and behavioural sorts, against the universal attributes and inner/upper traits; the dilemma implies revising the route followed in the empirical building of civic orders, using the theoretical guesses and applied operation with direct link to social orders. The civic/social modes are abstract features, supplying political views of our complex civilisation.

ECO-SUSTANABILITY

The civilisation joins technology innovations and political advances, which apply to the material reality, turning wilderness, to wellbeing. The transformations of the physical reality happen with entropy increases, which affects, as well, information and tied processing. The abstraction and encrypting of knowledge, from spotted information, extract the timely intangible feature, from the instant material carrier. Furthermore, along the renovations, the created comfort is complex target with:

- interaction with the surrounds, getting cultural notions, owing unified coherence;
- interplay with other peoples, using ethical principles, meriting shared consistency.

The entropy growths mean downgrading of the environs, notably, at earth range, unless the planning of equal restoration allows balancing the decay. The recovery applies looking at intangible value added by fit discoveries having technical or political sorts, or at moving resources to earth and waste out of it. The latter policy is consistent, as our planet is negligible entity, compared to the universe. The retrieval looks at local results, but in any case, men do not have power to modify the galactic courses with global measures:

- spot progress: the programming looks at assuring local richer actuality;
- spot regress: the waste reclamation transfers the local poorer actuality.

The entropy discovery requires revising the progress myth, since the intangible sources supply planning competencies, but not remove the entropic trends. The ecology (narration about our home) completes our warnings, when over-depletion and over-contamination risk making no more hospitable the land, in which

we love. The civilisation changes the wilderness moving resources, from the backdrop, to men enjoyment at individual and collective profit, but, also, leaving out litter and falloff. During the ages, the impact on our earth, from insignificant, becomes relevant, with increasing peoples. Typical references are:

- marginal autonomy: with establishment of peoples, performing leadership targets;
- split-sovereignty: with formation of competing nation state, fighting for headship;
- global liability: with self-rule similar countries wholly exploiting earth's resources.

The archaic tribes promoted nomadic settlements, limiting the consumption to spontaneous produces and for new locations, when further foods are necessary. The agriculture activity obliges land's allocation with country's' detaching and nation's formation. The autonomy isolating leads to sovereignties, owing kings or leaders, looking at distinct profits: spot progress no against spot regress of neighbouring nation states becomes effective policy. The ecology, recently, imposes controlling the allowed consumption and contamination figures: the enforced statistics needs be uniform, as the enacting authorities cannot allot local favours and the nation state rivalry shall become illegal. The ecology requests revising how long civilisation can continue and how far progress is sustainable: the queries prospect two situations: the humankind spot progress; the galactic headway. The latter question is without general answers, but hints limited at devising solutions of the former query are possible, when the cosmic rationality or heavenly hypotheses are common choice.

Regular Societies

The <regular societies> are the standard political arrangements, leading to nation states, for which split-sovereignty assigns governance autonomy. The allotment or consignment of dominance here has a priori foundations, not just a posteriori recognition; the resulting authority defies:

- inborn hierarchy, in which the genetic setting assigns the individual roles by Darwinism;
- holy leadership, in which the divine agreeing decides about royal and imperial destinies;

- approved headship, in which the gathered communities execute the choice of authorities.

The regular societies, with bottom up construction via the relational modes, cannot discover top down proof; the extant leaderships can only expect sociable welcome, or recommended lawfulness, or, as well, qualified sanction of decisional independence; together, the sovereignty has suitable implementation:

- the informal (friendly) sphere allows understanding and interacting with civil traits;
- the indorsed legality sphere sustains transactions, keeping right business dealings;
- the certified authority sphere brings in the operation autonomy of the local rallies.

The relational modes, as above observed, promote three-layer architects, communication, business and authority, each time, specialising the interpersonal bonds.

Biology and genome do not seem sufficient to find out links and architecture, because language, trade and government denote very complex abstraction and encrypting procedures, when the invented symbols, rules and dominion do not find hints to copy and to generalise. The regular societies, thus, correctly specify with inner/upper/factual inspirations:

- peoples have intrinsic governmental structures, with legitimacy and kingships;
- countries enjoy hierarchical supervision, with sovereignty set by divine claims,
- citizens benefit of unified management by operational authenticity officialdom.

The civic/social orders' regularity of the nation states is obvious, under headship compulsion: rivalry and hegemony wars lead to dominations and conquests, creating empires, with benefit of leader countries.

The political hierarchy is stable issue, only modified by new world wars, or frozen, if equivalent opposed blocks make risky the war benefits. In these scenarios, economic hegemony distinguishes developed, developing and underdeveloped countries; the sovereignty is formal status, with varied financial autonomy and biased wealth settings, so that power and profits respect extant architectures, to grant steady political headships.

Globalvillage

The <global village> is emerging collective breakthrough, when the development differential decreases and the life quality offers everywhere similar chances. The switch, from the previous regularity, requires extra facts fostering the social uniformity, namely:

- global communication, based on computer networking and worldwide web facilities;
- global market, enjoying worldwide transactions and active multinational enterprises;
- global ecology, with equally compulsory consumption and contamination constraints.

The changeover simplifies the civic/social orders, without national borders and unified citizenship: thparental teaching, followed, in principle, by unified state schools, which avoid the ethnics formation and local accreditation in closed societies, since:

- the homeland's regularity yields split-sovereign setups of parallel closed societies;
- the homeland's uniformity establishes the single open society of the global village.

The regular societies follow centuries of cultural and political division into parallel nation states; their autonomy explains split-sovereignty, competition and conflicts, repeating parallel independent men, which use self-rule, rivalry and fight for power. The uniform society is odd issue, with prior fixed idiom, economy and ecology, already allotted as homeland's coercion. The two administrative/managerial organisations are apparent outcome of adaptive either pre-set procedures:

- bottom up: creative selection of idiom, trade and authority for closed society democracies
- top down: idiom, trade and authority sanction, with inner/upper pressure direction setups.

The civic orders need creating the governance: election by self-sufficient assemblies of citizens is right option; the social orders have *inner/upper* ruling settings: the uniform open society is reliable opportunity.

The choices, of course, are potential and the alternatives are possible, leaving open the real results, so that the global village is latent solution to investigate. Men or robot driven issues are possible:

Manufacture / Relational modes: Robots and Sustainability

- the cognition paths establish minds' worlds, allotting the civilisation increases;
- the inner rationality or upper wisdom includes singularities, granting evolution.

Regularity or globalisation repeats political arrangements with multiple backings, for instance:

- peoples have intrinsic governmental structures, with legitimacy and kingships;
- countries enjoy hierarchical supervision, with planned manufacture directives,
- citizens benefit of unified management by operational authenticity officialdom.

The global village cannot properly provides benefit from collective or geographic advantages, possibly, only the administrative unification. The split-sovereignty allows differentia progress; the skill manufacture needs specialised workforce; lawfulness and proficiency, however not directly link to civic/social setups. In the reality, the ecology seems to be the impending spur of the change, with trimmed requests

- the legality acts, using the relational modes to build kinships, with ordered setups;
- the technology innovation empowerment, by manufacture modes of men or robots;
- the global constraints, if the ecology constraints affect the earth's current resources.

The parallel communication, economy and ecology globalisations directly link to the robot-like potential innovations, which consistently deal with worldwide web, universal market and overall recovery. The single constraints need computer-aids purposely developed for data handling and service supplying. The switch of regular societies in global community does not safeguard the gaining expertise of clans and sites; then, the efficiency downgrades, unless the specialties have shared encoding, easily usable by everyone. The all rally, if purposely aimed at ecology sustainability, inherits web and trade links with questionable fitness.

ROBOT RESCUE

The robots, fitly, replace men by artificial energy and artificial intelligence. At this stage, the knowledge has contingent worth; but the number of covered details expands to cover known trends, modelled, using immanence monism and transcendent dualism, entailing the

detected reality. The ensuing civilization data combine technical revolutions and collective break throughs or the parallel equivalent cosmic rationality or heavenly wisdom process. The synthetic hands/minds, moreover, can create equivalent advances opposes to wilderness and directly supported by universe, due to improved life-conditions. The progress, maybe, is automatic pursue, already written in the cosmos logics or directly/indirectly plugged by galactic rules. The description avails of absolute reference data:

- immanent monism: the \langle information \rangle is intrinsic quality of the \langle matter \rangle ;
- transcendent dualism: a \langle godlike reality \rangle rules the \langle material \rangle processes.

The two tracks, actually, differ. The latter only suitably deals with explicit knowledge; the former detects intrinsic knowledge, implicit trait to handle with (material) carriers. The immanence has to face the Gödel's theorem on the self-sufficiency of the axiomatic propositions:

- It is impossible to prove the non-contradictoriness of an axiom system, within the theory.
- Fit mathematical algorithms show the lemma insistency by the system non-completeness.

The lemma becomes tautology: the system completeness requires extra data. In conclusion: it is hard knowing if a unified physical theory exists; if obtainable, its logical coherence is defective, at the range of the human science. Absolute \langle information \rangle could exist as it; yet, out of factual logic. Then, the ontology test applies: if the trait has encrypted format, it shall exist, making the data processing possible. To conclude, by transcendent dualism, the autonomy of spiritual knowledge is faith; by immanent monism, not to be fickle tautology, we use intrinsic knowledge, whose autonomy is faith, built on ontology assessment.

The robot-like procedures or synthetic hands/minds create the known civilisation, with understanding, trade and running layouts. For sure, what confined happening on our earth, are fully negligible occurrences, compared to phenomena affecting the sidereal spaces and the discovered for fields and matter assemblies. Links might establish as anthropic principles, deriving causative frames, for the promotion of the human civilisation from the universe's laws or the linked gene/meme trail. The facts are

clear: along the ages, they show the political arrangements connect to monism, dualism of factual choices, involving:

- natural causation: immanent control applies, deciding out Darwinism leaders;
- holy lineage: spiritual rulings affect the souls, with guides for each community;
- self-government: democratic poll enables the nation-state sovereign authority.

The total descriptions use religions, with holy backing, and physical laws, with experimental tests. From Newton on, the gravity's cosmology joins central stars and elliptical orbit planets; Einstein general relativity aims at unifying all force fields with Big Bang and Black Hole models, lately empowered by gravity's waves. The immanence is appealing clue, describing many details, as if the galactic laws have deterministic innerlogics.

Their self-sufficiency, however, clashes against Gödel's theorem, as said. The absolute cosmos' data show that the shaping information does not avoid entropy growth, i.e., the progress cannot continue or the growth trend is not sustainable, because entropy is universal constraint. The natural rationality or spiritual wisdom is potential supplement to determinism, with human or robotic enhancements and:

- belief in the external structural consistency of the universe and in liked information;
- trust in experimentations checks and in gathering of useful layouts to fix the reality.

Besides intelligence, extra rationality or wisdom, by contingent (human-like) or total (robot-like) basics, support the progress, modifying wilderness, into civilisation. Global uniformity, after regularity of the nation split-up, is practical option: local ranges starts on multiple dialects, to move to nation idioms. These are bottom up results, if no top down inner/upper reasons modify the setting.

The meme fruition destroys marginal talks; it establishes cross-border markets; it merges folks and the Decreed Rules. The uniform imperialism (China) can millennial stability. The parting into hierarchic setups (Europe) needs spot enhancements, being the neighbouring site second or third class worlds. The latter scenario has city-states and nation-states; the former require strong inner/upper rulers or imperative motivations such as the coming ecology hassles.

Total Salvage

In the analyses, the civilisation is contingent goal of human intelligence, but, also, total mark of cosmic rationality or heavenly wisdom. Both situations replace wilderness, by men friendly life quality, but issues are quite different, since the latter way further splits with inner or upper driving causes:

- factual self-sufficiency: progress is intelligent by-product, via independent knowledge;
- monism: progress is open query, using rational plans, handled by intrinsic knowledge;
- dualism: progress and <miracles> are wise designs, brought in by absolute knowledge.

The all lines involve robotic equipment: the first, with artificial energy/intelligence, supplying apt control of the performed operations; the other two, with synthetic hands/minds, having immanent or transcendent planning of the men friendliness adaptation of the universe, leaving doubtful operation awareness:

- humankind careful steering, factually promises suitably intelligent observers/actors;
- matter and information unify and reality has no cogency acts, with total actual issue;
- spirit separates from matter and the two realities follow absolute, upper ruled, laws.

The mind invents and processes contingent knowledge, prospecting technical innovations and political revolutions, to help allotting consciousness and allaying growth. The earth characterises by anomalies:

- life or biology courses, conferring autonomous agentive operation ability;
- intellect or interpersonal mind abstraction skill, allotting cognition power.

The total knowledge is intrinsic (detect format of galactic information) or absolute (read trait of spiritual reality); the human versions and data processing interfaces allow achieving aware assessments of environs and tied dealings.

The synthetic hands/minds copy the anomalies by agentive courses with inner rationality or upper wisdom; <big data> or <big brothers> modify the existing natural law, offering stable coherence with reliable soundness. At the stage,

the knowledge has total worth; the number of covered details expands, to include the detected data of the reality. The ensuing progress combines technical revolutions and collective breakthroughs, by the known trends, modelled using factual dualism and, also, dualism or monism.

The synthetic hands/minds are total robot-like actors, keeping consciousness of the performed tasks, so that the ecology sustainability is on process verified, when the <big data> or <bigbrothers> logics operates at earth contexts. The procedure has two level structure, with data interface, fixed in the physical reality:

- belief in inner/upper progress consistency of the universe and liked information;
- trust in experimentations checks and in gathering of useful layouts, to fix reality.

The <big data> express the intrinsic knowledge managing of rationality, if civilisation asks inner control. The <bigbrothers> gives the spiritual knowledge running of wisdom, if civilisation needs upper command. The lines equally provide total advances with automatic planning and implicit or visible delivery. The idea that the development of man friendly surrounds are universal chance, with rational and wise traits entails the natural or spiritual disposition of the reality: inner or upper instruction shall be present outside human occurrences and written as galactic information. The synthetic hands/minds symbolise such outlook, which somehow duplicates biology and cognizance functions with human intelligence goals.

The rationality/wisdom mood of the galactic space tells that the human adventure is not local anomaly, but universal fallout; the results are not temporary, but permanent attainments; the ecology sustainability has inner/upper foundations, which shall supply recovery and salvage means, already present in interstellar frame. The recapture and reclamation benefit of total duty automation, accomplishing:

- one-way update: changes directly link to altered downgrading with stabilising rescue;
- automatic retrieval: recoups develop via planned instruction and training of citizens;
- synthetic settings: variations add and programming has inner/upper continuity tasks.

The depletion and contamination processes are, today, routine undertakings, performed with

industry proficiency; the related retrieval and salvage accomplishments are standard necessities, to effect with like assiduity. The existence of inner/upper total reclamation options is relevant chance.

Robot-Like Way

The synthetic hands/minds, if natural/spiritual provisions of the galactic environs, inevitably apply, with the inner/upper logics, not linked the three-layer relational frames that we know:

- communication language, with wording, lexical and grammar specifications;
- trade organisation, with the exchange of goods, properties and belongings;
- authority array, with the creation of legal hierarchies and governance rules.

However, the robot-like way needs message passing, interaction rules and fixed priority abilities, i.e., the listed interpersonal virtues. Up today, we conceive robots to accomplish manufacture acts, agriculture jobs or industry plans, replacing men, but without idioms, trade and kings. The technical knowledge develops, providing the exploitation and control on the surrounds (agriculture) or discovering and using dispensation contrivances (industry), but the relational modes are out of sight. The added political and technical options that create the civilisation (modifying the backdrop wilderness) are men inventions; the all, thus, should not too much from the traditional progress, say, to create the civic/social orders and to enhance produced outputs and to enable productivity. The technical revolutions yield to inspiring work-organisations, which fully alter the economic surrounds. The collective breakthroughs community attainments; they distinguish countries and populations, along political goals.

The analyses tell that the civilisation changes link to the agentive and reasoning skills, enabled, on earth, by men. Those mobility and thinking modes have biology and cognition foundation; men designed robots have artificial energy/energy origins; they, moreover, appear implementing synthetic hands/mind, when generated by cosmic rationality or heavenly wisdom. The three starts are quite dissimilar; the common goal is the civilisation, typified by conscious account of on process occurrences and forecasts. The agentive and reasoning modes, via human intelligence (or biology and cognition) aim at contingent progress and via

artificial energy/energy, the objectives do not modify. Via synthetic hands/mind, the connection with total knowledge adjusts the prospects, towards sustainability due to apt renovation of the involved resources. The third course is intriguing outcome: it can be non-distinguishable from the other two, if using the top down way of the human deployments; it mightily differ, if addressing the inner/upper causative approach.

At the completion of the study, the focus to the last sub case, when the global village replaces the rival nation states and sustainable ecology is major concern. The closed society builds on gene selfishness and solidarity biasing shall turn to open society, built on <big data> or <bigbrothers> cooperation and meme altruism efficiency, requiring the removal of the Constitutions splitting hitches. This robot-like way does not follow the human intelligence logic, even if some relation-like hints shall remain, as above-mentioned, since the meme structure is permanent request. The removal of biology and cognition foundation that we know shall address the equivalent other agentive and reasoning modes of the interstellar space, in which carbon-based life and brain-based thinking have wholly different implementations. The human-like solution is quite peculiar just to relegate the conscious account of the on process occurrences and forecasts to the negligible planer earth, through a single way.

CONCLUSION

The <global village> is impressive collective breakthrough, converting from the nation state setups, touni form open society, under unified ecology constraints. The switch link, here, to the complex scenario of how the changeover happens according to existing galactic causes, not just driven by human intelligence. The outlook combines two facts: ecology constraints and global breakthrough; apparently, these are not related, but they possibly provide explanations, through agentive and reasoning modes, of the next events in the history of the humanity:

- the globalisation: populations hardly find space on earth, within worldwide web links;
- the sustainability: depletion and pollution need warning: they progress with no rescue.

The future, indeed, aim sat the uniform society, which ask robot (artificial energy/intelligence or synthetic hands/minds) technologies, to grant sustainable recovery, along the discussed

optimistic lines, designed by human intelligence or promoted by inner rationality or upper wisdom. The past and future happenings of reality characterise by deterministic changes, described by galactic laws and by scheming improvements, already included by the galactic data. The wily enhancements, operated through men, occur via biology/cognition singularities, rhythmmed by technical innovations and setup sinventions. The collective breakthroughs typify the organised communities, through man-enacted laws. The switch from the nation state corpus juris (Constitutions or Decreed Acts) seems exploring gene evolution and god rulingin uniform contexts due to ecology necessity. The relational modes, for open society consistency, need revising earlier habits with contingency constructions, to address possibleoptions:

- the colloquial society, when communication is fundamental interpersonal link;
- the business society, when economics is dealt with, by legal trade regulations;
- the political society, when government requires enacting fit official protocols.

The new relational modes can bypass local native languages, spot bounded markets and instant rules, to practice universal communication, worldwide business and global governances. Now, we have written/oral talk, lawful trade and authorised leadership, as uniform aspects, with no focused cues. The conversion from nation states, global village, is questionable event, dependent on our readings of the relational modes and political orders. The manufacture modes and physical laws, usually, have accepted total consistency, giving insight s to allot truth to our science and technology. Moving to the robotic implementations, the relational and manufacture modes have similar construal and allow akin rational or wise universal faiths.

The considerations explaining the civilisation as produced by technology and political innovations permit further justifying the new sustainability necessities, face to the exhaustion and contamination impacts. The civilisation characterises by the utilisation of explicit knowledge of the extant environs, planned upgrading and granted recovery, with awareness on the actually performed measures. The all events allow monitoring if men or robots are on duty and if artificial energy/energy orsynthetic hands/minds manoeuvre. The robot alternative

distinguishes men designed equipment, from inner/upper driven gears: the behind conjecture says that the human intelligence is just sign of cosmic rationality or heavenly wisdom and the coherence of our galaxy brings to knowledge and consciousness, with civilisation-like displays. Then, life/cognition events are earth marks, but equivalent occurrences exist in the galactic information. «Big data» and «big brother» options are example robot-like total ways to deal with ecology sustainability problems.

The robots start by giving control visibility in factory automation and develop assuring ecology transparency in computer engineering, [1]-[24]; in the course, the emerging deductions look how to move from men devised technical aids, too universal management helps. The idea imagines that rationality or wisdom, more than human traits, are galactic aspects: the robot-like tools, provided by the example references, allow figuring out justifying hints on the hypothesised option.

REFERENCES

- [1] Acaccia G., Michelini R.C., Molfino R., Piaggio P., 1984, *Simulation of adapting control strategies for industrial robots*. IASTD Int. Conf. Modelling & Simulation, Nice, 19-21 June. pp. 47-51.
- [2] Michelini R.C., Acaccia G., Molfino R., 1987, *Design of intelligent logistics for factory automation*, IFIP Workshop on Factory Automation, Invited Lecture, Tokyo 19-21, pp. 184-208 and Sata T., Olling G., Eds., *Software for Factory Automation*, North Holland, Amsterdam, pp. 297-312.
- [3] Acaccia G., Callegari M., Michelini R.C., Molfino R., Piaggio P.A., 1988, *X-ARS, computer aided select robot architectures*, Gero J.S., Ed., *Artificial Intelligence in Engineering: Robotics*, Elsevier, Amsterdam, pp. 35-5
- [4] Acaccia G., Michelini R.C., Molfino R., Stolfo F, Tacchella A., 1989, *Decentralised control for FMS*, Intl. J. Computer Applications in Technologies, vol. 2, n. 3, pp. 88-100.
- [5] Michelini R.C., Crenna F., Rossi G.B., 2001, *Diagnostics for monitoring maintenance and quality manufacturing*, Leondes C.T., Ed.: *Computer Aided Design and Manufacturing: Techniques and Applications*, CRC Press, Boca Raton, Vol. II, pp. 2.10.01-2.10.62.
- [6] Michelini R.C., Acaccia G.M., Callegari M., Molfino R.M., Razzoli R.P., 2001, *Computer integrated assembly for cost effective developments*, Leondes C.T., Ed.: *Computer Integrated Manufacturing*, CRC Press, Boca Raton, Vol. V, pp. 2.7.01-2.7.66.
- [7] Michelini R.C., Acaccia G.M., Callegari M., Molfino R.M., Razzoli R.P., 2001, *Instruments robot design with application to manufacture*, Leondes C.T., Ed.: *Computer Integrated Manufacturing*, CRC Press, Boca Raton, Vol. VII, pp. 7.3.7.01-7.3.68II.
- [8] Michelini R.C., Razzoli R.P., 2004, *Product-service eco-design: knowledge-based infrastructures*, Intl. J. Cleaner Production, Elsevier, vol. 12, n° 4, pp. 415-428.
- [9] Michelini R.C., Kovàcs G.L., 2004, *Product-service for environmental safeguard: a metric to sustainability*, Intl. J. Resources, Conservation and Recycling, vol. 42, n° 1, pp. 83-98.
- [10] Michelini R.C., Acaccia G., 2006, *Distributed intelligence shops: quality clothes manufacture from fabric warehouse to sewn garments*, Lin J.X., Ed., *New Developments in Robotic Research*, Nova Sci., New York, chap. 4, pp. 121-172.
- [11] Kovàcs G.L., Kopàski S., Haidegger G., Michelini R.C., 2006, *Ambient intelligence in product lifecycle design*, Intl. J. Engineering Applications of Artificial Intelligence, Elsevier, vol. 19, m. 8, pp. 953-965.
- [12] Michelini R.C., Razzoli R.P., 2008, *Innovation for sustainability in product lifecycle design*, Cascini G., Ed., *Computer-Aided Innovation*, Springer, Berlin, pp. 217-228.
- [13] Michelini R.C., Razzoli R.P., 2009, *Complexity patterns of closed industrialism*, Cruz-Cunha M.M., Ed., *Management & Organisation of Enterprise Information Systems*, IGI, Hershey, chap. 17, pp. 329-351.
- [14] R.C. Michelini di San Martino, 2009, *Robot-age knowledge changeover*, Nova Sci., New York, p. xvi-344.
- [15] Michelini R.C., Razzoli R.P., 2010, *Environment-enterprise integration: networked entrepreneurial opportunities*, in F. Teuteberg, J.M. Gomez, Eds., *Corporate Environmental Management Information Systems*, IGI-BSR Pub., Hershey, pp. 347-364.
- [16] Michelini R.C., 2010, *Knowledge society engineering: a sustainable growth pledge*, Nova Sci. Pub., New York, p. xvi-350.
- [17] Michelini R.C., Razzoli R.P., 2010, *Reverse logistic: the end-of-life vehicles pledge*, Goti A., Ed., *Discrete Event Simulation*, SCIYO Pub., Rieka, chap. 7, pp. 115-140.

- [18] Michelini R.C., Razzoli R.P., 2011, *Integrated design: lifecycle ecoconsistency*, WSEAS Transactions on Environment and Development, Vol. 7, Issue 9, pp. 275-284
- [19] Michelini R.C., Razzoli R.P., 2013, *The ecology industrialism bet*, Cruz Cunha M.M. et al., Eds., Sociotechnical Enterprise: Information System Design, IGI, Hershey, chap. 1, pp. 1-19.
- [20] Michelini R.C., Kovács G.L., 2013, *Lifecycle eco-services for sustainability*, Int. J. Service Science & Management Research, SSMR, vol. 2, n. 4, pp. 48-56.
- [21] Michelini di San Martino R.C., 2016, *Cognitive revolutionquest: human civilisationprospects*, Aracne, Roma, p.xi-775.
- [22] Michelini di San Martino R.C., 2017, *The relational trails to sustainability*, Intl. J. Sustainable Entrepreneurship and Corporate Social Responsibility (IJSECSR), vol. 2, n. 1, pp 1-14.
- [23] Michelini di San Martino R.C., 2018, *Progress bases: biology and cognition*, Intl. Robotics & Automation J., Vol. 4 Issue 6, pp. 358-366.
- [24] Michelini di San Martino R.C., 2020, *Anthropic advances: global robot driven rescue*, Int. J. of robotic engineering, Feb.y, vol. 5, n 1, pp. 1-15.

Citation: Rinaldo C. MICHELINI di SAN MARTINO" *Manufacture / Relationalmodes: Robotsand Sustainability*", *International Journal of Research Studies in Science, Engineering and Technology*, vol. 8, no. 1, pp. 9-22, 2021, DOI : <https://doi.org/10.22259/2349-476X.0801002>

Copyright: © 2021 Rinaldo C. MICHELINI di SAN MARTINO. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.