

**Scheme of 'New Product and Service' System Creation Using TRIZ
– Search for a Creating Method of "New Product and Service" System
by Analyzing "Hot Sellers and Services" Using TRIZ –**

**Business and Management TRIZ Research Subcommittee
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What are the business and management TRIZ research subcommittee meeting?

- It acts for the spread and the development of the research on the business and the management field and TRIZ like the construction of the guidance etc.
- Fiscal year 2012, the TRIZ idea and the technique are applied, "Hot-selling product and service" system is analyzed, and it has searched for the method of creating "New item and service" system.
- Fiscal year 2013, the frame of "New item and service" system creation that applies TRIZ is presented from a current result of review.

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1. Is there a law in the creation of "New item and service" system? Two hypotheses and how to advance research activities

- A concrete case with "Hot-selling product and service" system is researched.



- It analyzes it by the TRIZ idea and the technique.



Systematic approach

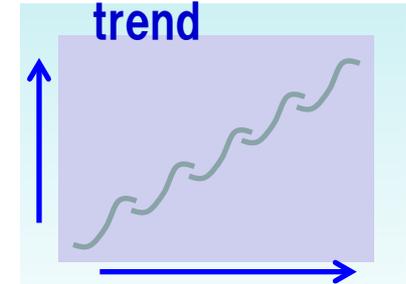
The past Present The future

	Super System		
	System		
	Sub System		

Contradiction Matrix

改善するパラメータ	1	2	3	4	5	6	7	8	9	10	11	12
1 物理量の量	+	+	+	+	+	+	+	+	+	+	+	+
2 物理量の長さ	+	+	+	+	+	+	+	+	+	+	+	+
3 物理量の広さ	+	+	+	+	+	+	+	+	+	+	+	+
4 物理量の面積	+	+	+	+	+	+	+	+	+	+	+	+
5 物理量の体積	+	+	+	+	+	+	+	+	+	+	+	+
6 速度	+	+	+	+	+	+	+	+	+	+	+	+
7 時間	+	+	+	+	+	+	+	+	+	+	+	+
8 重量	+	+	+	+	+	+	+	+	+	+	+	+
9 力	+	+	+	+	+	+	+	+	+	+	+	+
10 力/重量	+	+	+	+	+	+	+	+	+	+	+	+
11 力/長さ	+	+	+	+	+	+	+	+	+	+	+	+
12 力/面積	+	+	+	+	+	+	+	+	+	+	+	+

Evolution trend



- It searches for the method of creating "New item and service" system.

Frame of 'New item and service' system creation

Required hypothesis ①

- The contradiction situation caused by a past "Commodity and service" system and no adjustment of the user needs is analyzed by the functional assay.
- A common function and characteristic to settlement plan and "New item and service" system of the contradiction solution are analyzed.
- When it is effective for the creation of the center idea of contents with which the settlement plan of contradiction creates "New item and service" system if a common function and the characteristic can be found, it catches.

Frame of 'New item and service' system creation

Required hypothesis ②

- It is thought that it is not necessarily guaranteed whether the market accepts all created "Commodity and service" systems if needs and seeds are suited.
- Then, the method of medication of a general evolution trend (evolution trend of 32 of the Darrell Mann advocacy) for the business presented as 'Pattern' in which the market accepts the system is designed.
- Whether "Commodity and service" system along at the evolution level of the evolution trend passes by the method of medication of the designed evolution trend and it is being offered to the market in the age are analyzed, and the event is found.
- If the event can be found, it is caught that do ..application of the evolution trend and the evolution level.. direction of "New item and service" system creation ..adequate.. in the contents creation when it is effective.

How to advance research activities (details)

1. The business (business) that keeps putting out "New item and service" system and grows up is specified.

2. The characteristic in which "New item and service" system is created is analyzed.

The change factor of the market as assumption that creates "New item and service" system is specified in the passing age. The frame that grips the change factor in the future is made.

3. It is examined whether the contradiction discovery and the solution are effective for the creation of "New item and service" system.

The contradiction (dilemma demand) that the user holds in dealing with the change factor is specified, and it is verified whether there is commonness in the function and the characteristic of "New item and service" system from which the function and the characteristic of the settlement plan are offered to the market. There is an effective possibility if there is commonness.

4. It is examined whether the application of the evolution trend is effective for the creation of "New item and service" system.

① The method of medication of a general evolution trend (Darrell Mann advocacy) is designed.

② The design method is applied, and "Commodity and service" system : at a specific evolution trend and the evolution level.

The event of being offered to the market along in the passing age is found. If the event can be found, an evolution trend and an effective possibility of the application of the evolution level can be said.

③ Because an evolution trend and an effective possibility of the application of the evolution level can be said, it applies to an existing "Commodity and service" system. It pays attention to any of some the evolution trends (Darrell Mann advocacy) that are, and at which evolution level the target was squeezed is analyzed.

④ The evolution level of the specified evolution trend is raised, and the hypothesis of "New item and service" system (scenario) is made.

5. The creation process of "New item and service" system by the application of the contradiction discovery, the solution method, and the evolution trend is designed from these, and the frame is presented.

2. Creation of "New item and service" system 【 frame of approach 】

 【 method of approaching "New item and service" system creation with present axis 】

 【 method of approaching "New item and service" system creation with axis in the future 】

Frame of 'New item and service' system creation

Definition of "Commodity and service" system

● Business (business)

- Cooperation of labor activity done for a certain achievement of constancy and purpose
(new publication business and central economy company of business administration dictionary)

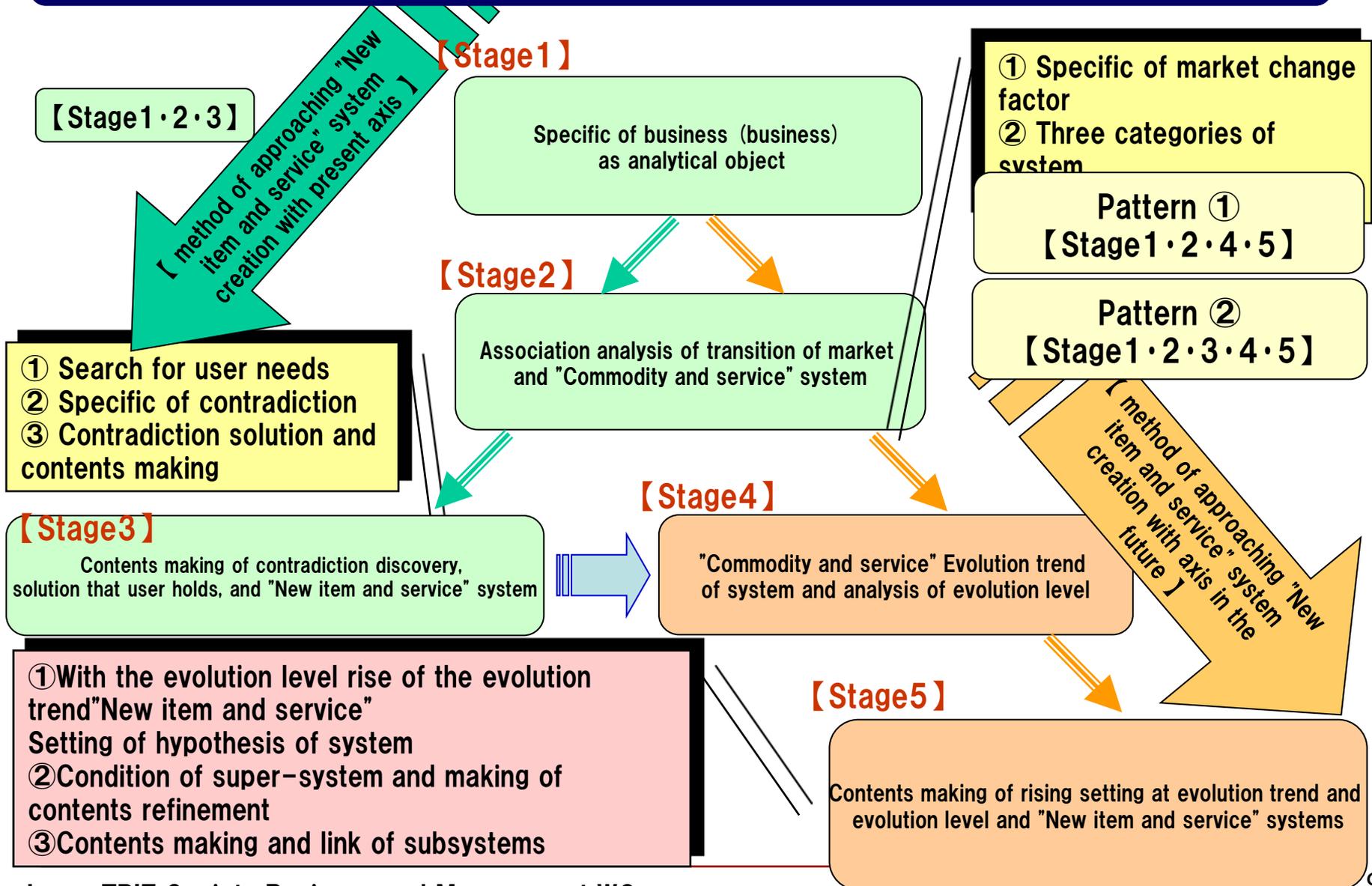
"Commodity and service" System

- System where technological system and man activity system have emergence [suru] function and characteristic in medium that achieves function that user demands

"New item and service" System

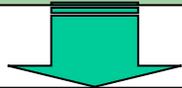
- "Commodity and service" system that has new effect accepted to market

Frame of "New item and service" system creation approach

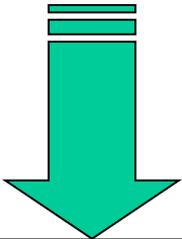


3. "New item and service" system in present axis Method of approaching creation

【Stage1】 Specific of business (business) as analytical object



【Stage2】 Association analysis of transition of market and "Commodity and service" system



- ① Specific of market change factor
- ② Three categories of system
- ③ Subsystem and 4M

**【Stage3】 With contradiction (dilemma demand) discovery and the solution that the user holds
Contents making of "New item and service" system**

- ① Search for user needs
- ② Specific of contradiction
- ③ Contradiction solution and contents making

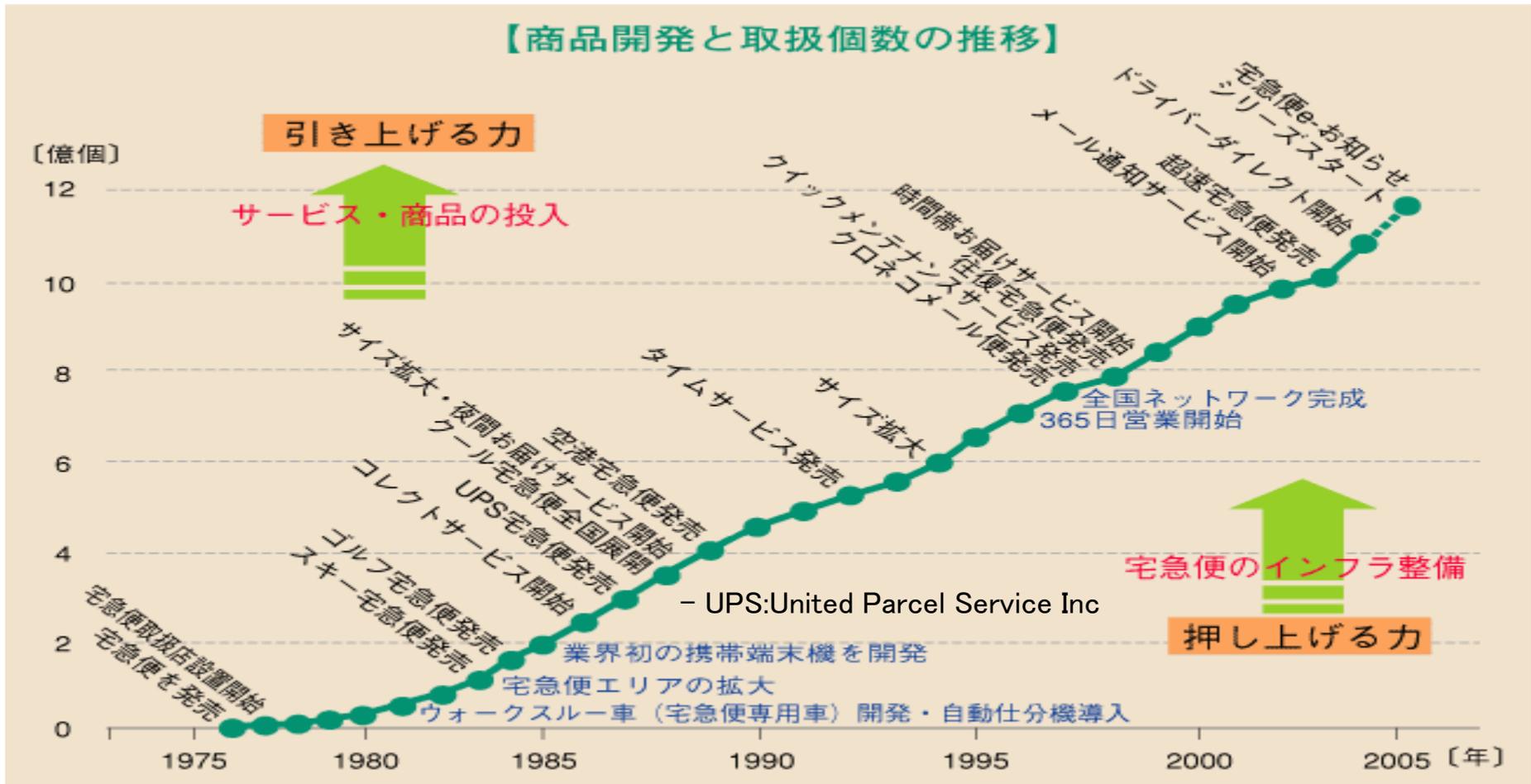
Creation of "New item and service" system 【Stage1】 Specific of business (business) as analytical object

- 【 definition of growth continuation business (business) 】
It keeps continuously putting out [wo] and "New item and service" system, and it is assumed the business (business) that has grown up for ten years or more.
- Then, it takes up as a growth continuation business that should consider "Business of delivering to home" that keeps putting out "New item and service" system for the past 40 years, and it will analyze it.

Creation of "New item and service" system 【Stage 1】

Specific (analysis) of < growth continuation business > case

"Business of delivering to home" and "Commodity and service" system



<http://www.kuronekoyamato.co.jp/company/30th/index.html> from origin "Walking

of takkyubin (home delivery service) .. 30 year"

“Commodity and service” list of business of delivering to home

From Yamato Transport homepage: <http://www.kuronekoyamato.co.jp/corporate/index.html>

Commodity and service

☆宅配便発売

☆宅配便取扱店設置

☆コレクトサービス

☆スキー宅急便 ☆クール宅急便

☆ゴルフ宅急便

☆UPS宅急便

☆タイムサービス

☆夜間お届けサービス ☆サイズ拡大サービス

☆空港宅急便

☆往復宅急便

☆クイックメンテナンス

☆クロネコメール便

☆時間帯お届け

☆365日営業開始

☆e-お知らせシリーズ

☆超速宅急便

☆メール通知

☆ドライバーダイレクト

Information system



Takkyubin (home delivery service) vehicle



Low pollution and gas-snipper

Big teapot



1997.11 Ogasawara Islands Takkyubin (home delivery service) handling beginning.
Nationwide network completion

Foreign country

The 1970's

The 1980's

The 1990's

The 2000's

Creation of "New item and service" system 【Stage2】 Association analysis of transition of market and "Commodity and service" system

① Specific of market change factor

- The systematic approach (multi-dimensional, creative idea) with two axes of "Super-system system subsystem" and "Time" is applied, and the change factor of the market where "New item and service" was created is specified.
- "Commodity and service" system turned on to the market is arranged along the time axis. Some the aspects of "Commodity and service" arranged with the time axis are set. Here, 5W2H is applied.
- A super-hierarchy of system should set a hierarchical number according to the object system. Here, three hierarchies are set. "User (customer), consumption (person) trend, and general social climate" is set as a super-system, and the change factor is analyzed.

"New item and service" system seen with the time axis

会社の沿革①

大正	11月	宅急便モデルチェンジ 60、80、100、120の4サイズ		
8年 1919年 11月	当会社創立。創立総会を東京市京橋区において開催する。 (資本金10万円、代表者 小倉康四郎)	11月 「夜間お届け」サービス実施		
12年 1923年 4月	三越百貨店と商品配送の契約を結ぶ。	11年 1999年 11月	空母宅急便発売。(成田空母)	
昭和	4年 1929年 2月	第二大和運輸株式会社設立。(現在のヤマトホールディングスの登記上設立日。事実上設立日は同年4月9日)	2年 1990年 8月	宅急便伝票のリサイクル活動開始
5月	第二大和運輸を存続会社として、大和と第二大和の各々の株主総会で合併を決議、新会社成立。大和運輸株式会社とする。	3年 1991年 6月	福井輪送株式会社より営業権を譲り受け、全国ネットワークが構築される	
6月	東京-横浜間に本格的な定期便を開始する。(わが国最初の路線事業)	4年 1992年 2月	宅急便タイムサービス発売。	
24年 1949年 5月	東京証券取引所に上場。	5年 1993年 9月	第128期宅急便年間取扱5億個達成	
25年 1950年 3月	汐留にて通運事業を開始する。(同年4月秋葉原、飯田町各駅開始)	9月	(財)ヤマト福祉財団発足。	
26年 1951年 1月	C.A.T航空会社と代理店契約を締結し、航空貨物の取扱を開始する。	12月	宅急便年間取扱1億個を達成	
30年 1955年 3月	国際航空運輸協会(IATA)より貨物取扱代理店の公認を受け、内外著名航空会社と代理店契約を締結する。	3月	ヤマトの緑のLPG車(2t車)を初売し、実用テストを始める	
32年 1957年 9月	親子猫マーク(商標)を制定し使用を開始する。	7月	宅急便デジタルチェンジ「140増設、取扱い時間短縮制度を開始	
33年 1958年 9月	美術画輸送業務を開始。(インク帝国文化展、ゴッホ展を受注する)	4月	社訓、経営理念、企業姿勢、から編みだされた「ヤマト運輸制定。	
48年 1973年 1月	コンピュータ部門を分離し、ヤマトシステム開発株式会社を設立する。	4月	「ヤマト 通運企業理念」に理念を規定する。	
49年 1974年 2月	貨物輸送に関するオンラインシステム(NEKOトータルシステム)を開始する。	9月	セキユーターパッケージを発売	
50年 1975年 9月	家財等の長期保管のためのパナクシステムを開発。取扱を開始する。	12月	宅急便発売開始からの発送個数を超える	
51年 1976年 1月	関東一円において、かんたん宅急便宅配システム「宅急便」を開始する。(毎日1日の発送個数は11個。同年5月から東北・関東主要都市に拡大)	8年 1998年 6月	環境庁の「アイドリング・ストップ」に参加。ステッカー付。	
54年 1979年 3月	第114期宅急便、1,000万個達成。	8月	伊豆諸島の七島(利島、新島、津島、宅島、御蔵島、青ヶ島)エリア拡大。	
56年 1981年 12月	宅急便年間取扱1,000万個を達成。	12月	年末年始営業開始。365日営業	
57年 1982年 10月	商号をヤマト運輸株式会社と改称する。	3月 1997年 3月	「クロネコメール便」全国展開	
58年 1983年 12月	スキー宅急便の販売を開始する。	6月	オンライン荷物取扱の総発着市場「第1号店」として、名古屋トナリセンターを販売開始	
59年 1984年 3月	第119期宅急便取扱1億個を突破。	6月	「環境マーク」に環境より地域貢献の環境保全の取組を受け。	
60年 1985年 3月	ゴルフ宅急便の販売を開始する。	7月	ヤマトの緑のCNG車(2t車)発売し、実用テスト開始。	
61年 1986年 11月	軽便車時に履きもを利用した「アイドリングストップ」を開始。	11月	小笠原諸島(父島、母島)の開始し、宅急便の全国ネットを達成	
62年 1987年 2月	UPS宅急便販売開始。	11月	クロネコ・クイックメンテナンス発売	
63年 1988年 5月	全国一泊無線による運行情報システムスタート。	2月	ホームページでの「荷物お問合わせ」スタート。	
64年 1989年 7月	クール宅急便全国展開。	4月	低炭素車として2010年まで年間2人乗車を発売	
65年 1990年 9月	ヤマト・マナー・シリアル発売。	6月	「時間をお届け」サービス開始	
		6月	「ゴルフ・スキー・空母」サービス開始	
		11月	宅急便でお取り寄せができる新サービス「クロネコ探検隊」	
		11年 1999年 4月	ユニホームリサイクルに取	

会社の沿革②

10月	クロネコメール便配達完了情報入力開始。	10月	ホームページ上でお届け所要日数を検索できる「お届け日検索」スタート。
11月	携帯電話情報提供サービスでの「荷物お問い合わせシステム」スタート。	10月	地域担当SDが携帯電話でお客様と直接コミュニケーションをとって要望に合わせたスピーディーに対応する「クロネコマナーのドライバードイレクト」をスタート
12年 2000年 7月	クロネコメール便サイズ拡大。民間で初めて全国一律運賃の認可を受ける。	11月	ドキュメントの日本向け国際メール便を国内で配達開始
11月	ネットオークションにおける代金決済サービス「宅急便エスクローサービス」発売。	17年 2005年 2月	お客様からお申し込みいただいた内容を無料で「宅急便送り状」に印字しお渡りする「宅急便送り状印刷サービス」開始。
13年 2001年 2月	インターネットでの宅急便集荷・再配達依頼受付スタート。	2月	お客様からご申し込まいただいた内容を無料で「宅急便送り状」に印字しお渡りする「宅急便送り状印刷サービス」開始。
4月	電気式MPiバン(エスコール車)を順次導入開始。	3月	純粋株式会社への移行を見据え、移行時にデリバリー事業を分割承継させる目的で、ヤマト運輸分割準備株式会社を設立。
8月	クレジットカードでの事前決済「クロネコ@ペイメント クレジットカード」スタート。	7月	従来の商品代金決済サービスである「代金引当」(クレジットカードによる事前決済)に加え、「お届け時のカード払い」「コンビニ・郵便局払い」「パソコン・携帯払い」を新たに追加。選取事業者様向け総合決済サービス「宅急便コレクト」を開始。
14年 2002年 2月	荷物が届く日時をお客様にメールでお知らせするとともに、ご都合が悪い場合は受け付け日・時間帯を変更していただける「宅急便「メール通知サービス」」をスタート	11月	ヤマト運輸株式会社の子会社の事業を分割し、純粋株式会社を設立。ヤマトホールディングス株式会社へは、ヤマト運輸分割準備会社は、ヤマト運輸株式会社へそれぞれ商号変更。
7月	パソコンを業務時に専用の資材でスピーディーに梱包し輸送する「パソコン宅急便」の取組開始。	11月	ヤマト運輸株式会社の子会社の事業を分割し、純粋株式会社を設立。ヤマトホールディングス株式会社へは、ヤマト運輸分割準備会社は、ヤマト運輸株式会社へそれぞれ商号変更。
10月	全国で32,000台の携帯電話を導入し、お客様の要望を直接SDが伺う「SDダイレクト通信」を開始。	11月	荷物に関する各種情報(ご不在連絡、お届け完了「お届け予定」をメールでお知らせする「宅急便お知らせサービス」)を開始
10月	通販会社のクーリングオフやメーカー・管理商品の引取を対象とした「宅急便引取サービス」を開始。	18年 2008年 2月	ご不在で受け取れなかった宅急便をお客様がご指定されたコンビニエンスストアや百貨店で受け取る「宅急便店頭受け取りサービス」を開始。
12月	世界で初めて、2t車クラス小型トラックのハイブリッド集配車をテスト導入。	4月	「セキュリティ」と「環境リサイクル」を実現する「クロネコマナーの環境文書リサイクルサービス」を開始。
13年 2003年 4月	ヤマタグループ内の事業領域を明確に整理し、5つの事業フォーメーションを構築。	4月	「セキュリティ」と「環境リサイクル」を実現する「クロネコマナーの環境文書リサイクルサービス」を開始。
4月	クロネコメール便リニューアル。50g以下と100g以下の2サイズを新設。	6月	「セキュリティ」と「環境リサイクル」を実現する「クロネコマナーの環境文書リサイクルサービス」を開始。
4月	経営の効率化とお客様へのサービス強化を目的とした組織改革「宅急便エリア・センター制」を開始。	10月	「ヤマイ」「かんたん」「あんしん」に海外へ荷物を送れる「国際宅急便」を発売。
5月	お客様ご自身のパソコン・プリンタで簡単に送り状を印刷していただけるオンラインソフト「i-CATS送り状発行ソフトB2(ビーツ)」誕生。	10月	「クロネコメール便」リニューアル。また、お客さまの各種の要望に応え「クロネコメール便 選取サービス」を発売。
9月	宅急便1個あたりのCO2排出量を30%削減する「ヤマト運輸地球温暖化日誌」を策定。	11月	個人情報非公開で着払いの決済から配達まで「安心」して「便利」に利用できる商品の「オークション宅急便」を発売。
11月	航空機の深夜フライトを利用し、北海道-関東(1都7県)間で「超速宅急便」サービス開始。	19年 2007年 1月	「ヤマト運輸地球温暖化防止目標」の達成に向けて、低炭素なワークスループットのハイブリッド車の本格導入開始。
16年 2004年 3月	伊豆七島・小笠原諸島でのコレクトサービスを開始し、取り扱いエリアが全国へ。	4月	究極のエコ車「燃料電池ハイブリッド車」のテスト運行開始。
3月	クロネコメール便の約款適用開始。現金決済が可能になるなど、より使いやすいサービスへ進化。	9月	大日本印刷とのコラボレーションにより、DMの制作・印刷・配送までを一貫して提供する「クロネコメール便システム」発売。
7月	一度の登録で荷物のお届けをeメールでお知らせし、希望通りのお届け日・時間帯に変更しただけの宅急便「お届け通知サービス」スタート。	10月	個人会員制サービス「クロネコメンバーズ」開始。第一弾となる「らくらく送り状発行サービス」は「宅急便システム」向けに設置されたサービス端末「ネコピット」で送り状が発行可能。
10月	インターネット上で簡単に伝票が印刷できる「送り状発行システムC2(シート)」サービス開始。		

会社の沿革③

10月	宅急便の運賃を全国一律運賃に引き上げ、商品代金支払いに、電子マネー・カード決済が対応可能に。
20年 2005年 1月	宅配サービスにコンビニなどで支払可能な払込票が利用可能に。「クロネコメンバーズ」サービス「コンビニ・郵便局払い」「パソコン・携帯払い」を開始。
2月	「クロネコメンバーズ」に「お届け予定メール」(お届け予定メール)機能追加
3月	商品品質などを目的に、選取サービス(お取り寄せ)を法人限定で発売。
5月	配達時に本人確認をした上で荷物をお渡しする「宅急便「本人確認サービス」」を発売。
10月	「宅急便」が、2006年度グッドデザイン賞で、野村浩将「グッドデザイン・ライク」アワード受賞(「郵便局法人限定」)も受賞。
12月	地域の子どもたちに配達物の配達を伝えることを目的として、1998年から実施している「こども配達安全教室」の参加人数が25万人を突破。
2006年 6月	全国の百貨店101店で、複数の電子マネーによる運賃・料金の決済が対応開始。
9月	選取サービスに法人向けパッケージサービス「クロネコメンバーズ」を開始。
10月	サービス品質と業務効率の向上を目的に、経費削減の一環として郵送料、送料の削減を開始。
11月	サービス品質と業務効率の向上を目的に、経費削減の一環として郵送料、送料の削減を開始。

- Adjustment of time
- Expansion of kind
- Addition of function

Creation of "New item and service" system 【Stage2】
 Specific of change factor of < market and "Commodity and service" System (analysis) > case

"Commodity and service" characteristic of system and application of systematic approach

Super-system	一般的な社会環境			高級品、輸入品ブーム	共働き	インターネット、携帯電話普及	
	消費(者)動向			生鮮食品ギフト、産地直送の野菜や魚介類		ネットショッピング、ネットオークション	ネットショッピング、ネットオークション
	利用者(顧客)	自宅まで届けてほしい (これまでは最寄駅留)	指定日に届けてほしい	朝一番に届けてほしい	受取人が在宅の時に届けてほしい	受取人に配達時間帯を知らせてほしい	受取人の都合の良い時間帯に届けてほしい
System	年代	1976年	1988年	1992年	1998年	2002年	2005年
	いつ届けるかという視点	不定時配送	指定日配送	タイムサービス	時間帯お届けサービス	メール通知サービス	不在通知eメールサービス

Creation of "New item and service" system 【Stage2】 Association analysis of transition of market and "Commodity and service" system

② Three categories of system

- To clarify the development process of "Commodity and service" system based on 'User and consumption (person) trends and general social climates' by three hierarchies of a super-system, it thinks about the system as follows.

- **The frame that grips the change factor in the future is made.**

- Commodity and service concerning "Additional value to society"

System that contributes to society general of social responsibility etc. (CSR) of natural environmental protection and enterprise.

- It specifies it by the relation to "General social climate" of a super-system.

- Commodity and service concerning "Additional value to user (customer)"

System that tries to fill needs concerning compliances of safety, safety, and guarantee, etc. (societal demand) that user (customer) hid by him/herself.

- It specifies it by the relation to "Consumption (person) trend" of a super-system.

- Commodity and .. service concerning basic function of business (purpose)

System that tries to have been declared user (customer) or to fill true needs with the one personally related to basic function of business (business) (purpose).

- It specifies it by the relation between "User (customer)" of a super-system and the stake holder.

Creation of "New item and service" system 【Stage2】 Association analysis of transition of market and "Commodity and service" system

③ Subsystem and 4M

- The subsystem is analyzed by the aspect of 4M (Material, Method, Machine, Man). What kind of element is set respectively depends on the object system.
- In the following cases, Material (machine parts and timber for wooden box, etc.), Method (environment, method, technology, and information, etc. related to the organization and the business accomplishment), Machine (vehicle, fixture and furniture, and information device, etc.), and Man (talent, skill, and knowhow, etc.) were set.

Creation of "New item and service" system 【Stage2】
 Specific of < market transformation and "Commodity and service" System (analysis) > case

Super-system system subsystem

【Super-system Three categories】

- ① General social climate
- ② Consumption (person) trend
- ③ User (customer)

【System Three categories】

- ① To "Additional value to the society"
Concerned commodity and service
- ② Commodity and service regarding to
"Additional value to user (customer)"
- ③ Commodity and service regarding to
"Basic function of business (purpose)"

【the subsystem And 4M category】

- ① Material ② Method
- ③ Machine ④ Man

		1985年	1986年	1987年	1988年
System Supermarket	一般的な社会環境	プラザ合意 NTT, JT発足 日航ジャンボ機 墜落	カウチポテト族 団塊の世代40 代突入	JR発足 総合保養地域 整備法制定	青函トンネル 開通
	消費(者)動向		通販の普及	「本の宅配」 ヒット商品	高級生鮮食材
	利用者(顧客)		個人消費の拡大		
System	社会への付加価値 サービス	9月:アイドリング ストップ			
	利用者(顧客)への 付加価値サービス		10月:時間便 11月:コレクト サービス		11月:夜間お 届けサービス 開始
	小包を配送する サービス	7月:引越しらくら くパック	10月:ブックサー ビス	2月:UPS宅急 便	7月:クール宅 急便全国展開
Subsystem	Material (機材・梱包材な ど)	家財道具梱包箱	本専用梱包袋		生鮮食品等取 り扱い箱(クー ラーボックス) 11月:サイズ モデルチェン ジ
	Method (組織編成、業務 遂行に関わる環 境・方法・技術・情 報など)				
	Machine (使用機材、デバイ スなど)	業界初専用携帯 端末開発		全国一波無線 5月:運行情報 システムスター ト	冷凍、冷蔵 付、配送車 ト
	Man (人材、スキル、ノ ウハウなど)	SD(セールスドラ イバー)、ターミ ナル操作、アイド リングストップを 行う	金銭取り扱い		

Creation of "New item and service" system 【Stage3】

Contents making of contradiction (dilemma demand) discovery, solution that user holds, and "New item and service" system

① With an existing "Commodity and service" system

No adjustment of the user needs is found.

⊗ Making of "Profitable function system chart"

- The function of a present "Commodity and service" system (purpose) is defined. This is assumed to be a profitable function of "Commodity and service" system.
- "System of the activity related to" found from the definition to put the viewpoint on the user is assumed to be a profitable function. These functions are arranged by the logic of "Purpose – the means", and the profitable function system chart is made.

⊗ Making of "Functional diagram"

- "Functional diagram" is made by finding the adverse effect that the method of achieving a profitable function of "Commodity and service" system is caused as a cause and the adverse effect that obstructs a profitable function as the user needs, and relating it to the profitable function system chart.

Model of 'Global procurement support system [Yamato HD]' (case)

It is analyzed whether contradiction (dilemma demand) discovery and the solution that the user held were offered to the market as "New item and service" system.

Situation before 'Global procurement support system [Yamato HD]' is offered to market as "New item and service" system

Situation of market

Major manufacturing has accelerated the move of the manufacturing base to foreign countries for the low labor cost. Under such a situation, a lot of parts suppliers have a hard time in the communication with the subcontract enterprise that remains in Japan because it moved the manufacturing base with major manufacturing. It mails and it often does by fax, and it takes people and time to the order and the delivery date management of parts of the manufacturer and the subcontract enterprise.

Creation of "New item and service" system [Stage3]

Definition that stands in < user's viewpoint and "System of activity related to" (analysis) > case

Is the situation in which a present "Commodity and service" system is surrounded caught as what kind of related activity system?

- ❄ The stake holder (organization and people) is specified.
- ❄ How to catch <It is possible to mean it > of the related activity system
 - ❖ If you see for the organization and people who have relations "It want to be so" Isn't it "It is - as for - ." ?It asks oneself, and it catches as "System that does --". Or, it catches as "-- is done" and "System that can do --".

For the user (foreign parts manufacturer)

- System that procures parts of proper dose
 - System that at the right time procures parts
 - System that secures proper stocks of parts
 - System that efficiently does ordering
 - System that efficiently does delivery date management
 - To the major manufacturing enterprise and parts of the proper dose to timely
- System that supplies it
It is possible to be able to mean it by these.

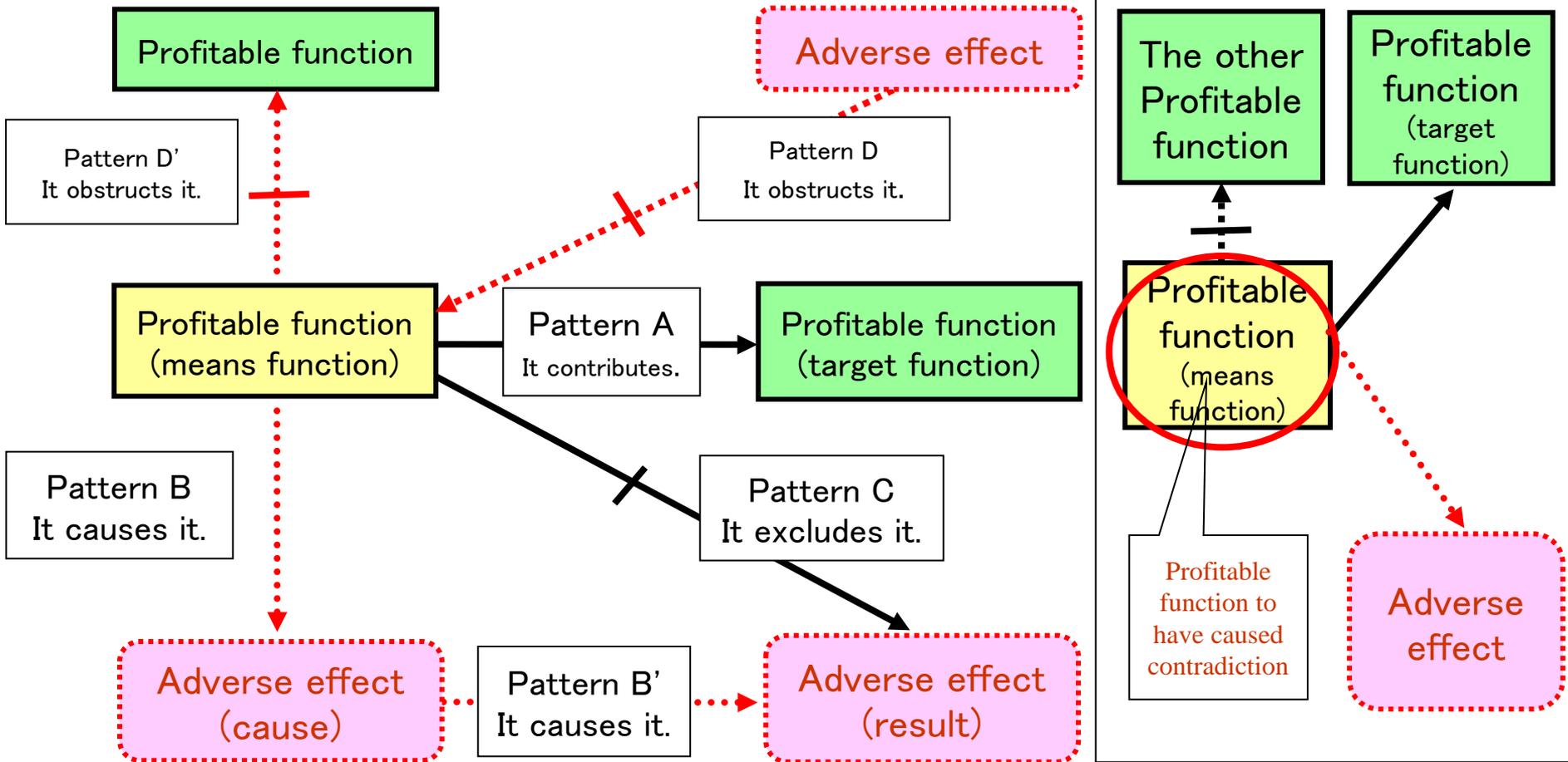
For the user (domestic subcontractor)

- System that efficiently does ordering
 - System that attempts labor saving of sending out procedure
 - System that attempts labor saving of part packing
 - System that delivers parts at freeze date
 - System that does customs clearance procedure in a short time
 - System that does collection of bill in a short time
- It is possible to be able to mean it by these.

Specific pattern for functional diagram and contradiction

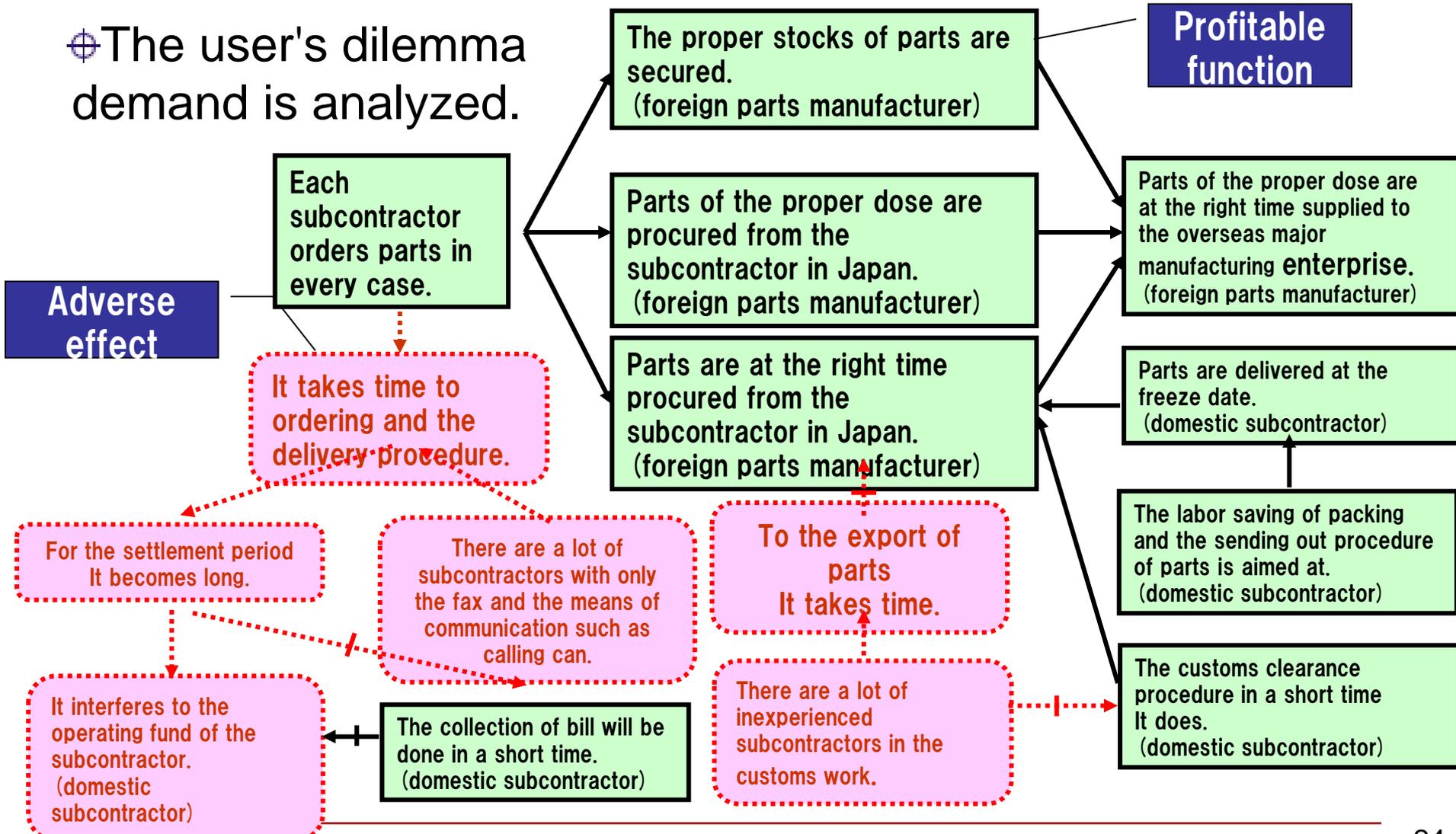
Functional diagram

Specific pattern for contradiction



Creation of "New item and service" system [Stage3] 【 functional diagram 】 < functional assay > Case

⊕ The user's dilemma demand is analyzed.



**Creation of "New item and service" system 【Stage3】
Contents making of contradiction (dilemma demand)
discovery, solution that user holds, and "New item and
service" system**

② The center contradiction is specified, and the solution is found.

❖ Contradiction is specified from "Functional diagram".

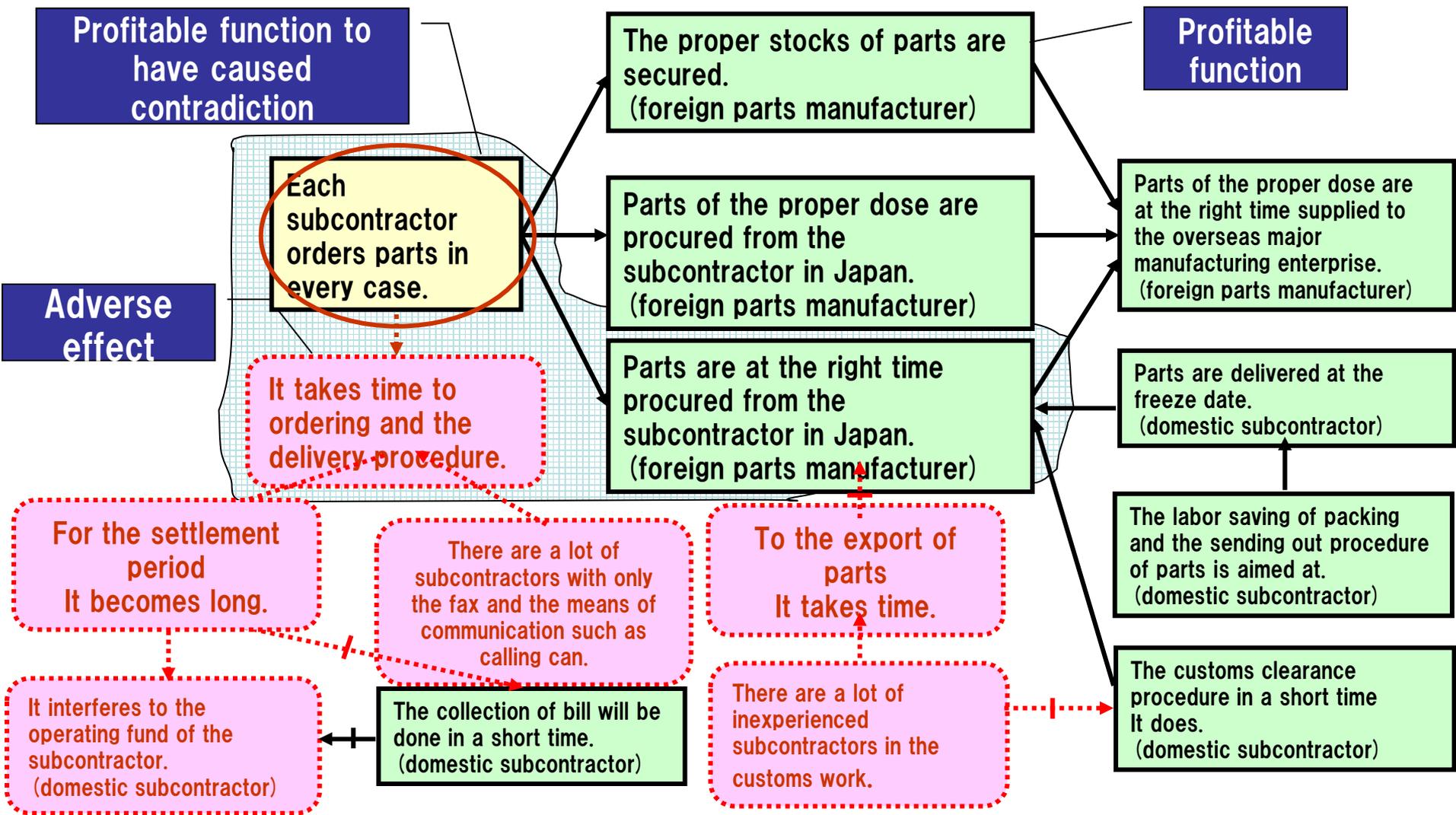
- It tries to contribute to a profitable function that becomes a purpose from "Functional diagram", and a profitable function to cause the adverse effect or to obstruct other profitable functions is specified.

❖ The idea of the contradiction solution is conceived.

- "Contradiction matrix" and "Invention principle of 40" are applied and the solution is found.

※ 【Hands-On Systematic Innovation for Business & Management】2007
by Darrell Mann

Creation of "New item and service" system [Stage3]
 【 functional diagram 】 Specific (analysis) of functional assay and < contradiction > case



【ビジネス矛盾マトリックス】

【対立する特性】	【改良・改善する特性】																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
	R&D 仕様/能力/手段	R&D コスト	R&D 時間	R&D リスク	R&D インターフェース	生産手段 仕様/能力/手段	生産手段 コスト	生産手段 時間	生産手段 リスク	生産手段 インターフェース	供給 仕様/能力/手段	供給 コスト	供給 時間	供給 リスク	供給 インターフェース	製品信頼性	サポートコスト	サポート時間	サポートリスク	サポートインターフェース	消費者所得/要望/フィードバック	情報量	
1	R&D 仕様/能力/手段	2.4 15.38	21.38 35.23	3.9 24.23	3.13 24.33	23.29 35.4	37.35 10.3	35.6 10.2	3.5 10.2	5.7 37.1	6.2 35.25	15.6 1.5	2.3 12.26	11.39 30.31	11.26 2.5	36.11 2.35	15.35 28.25	5.2 6.27	15.27 40.12	11.2 5.9	14.13 22.7	37.13 25.10	
2	R&D コスト	2.4 15.38	26.34 1.10	27.9 34.16	13.26 35.10	5.2 27.1	26.35 1.7	10.2 6.15	6.7 23.26	15.35 10.25	23.6 11.28	10.5 35	10.19 35.22	11.13 2.16	10.38 13	27.6 1.10	6.1 10.25	6.1 25.10	10.25 22.2	6.10 1.7	7.25 30.21	37.25 28.2	
3	R&D 時間	21.38 35.23	26.34 1.10	27.9 34.16	1.29 10.40	15.25 35.1	5.6 17.40	5.29 35.2	7.26 10.15	6.15 7.37	25.23 23.19	11.6 23.25	5.13 7.2	20.5 29.2	11.7 40.38	6.10 3.35	7.15 40.26	7.40 1.26	23.24 2.37	6.10 26.24	7.19 21.29	7.2 37.20	
4	R&D リスク	3.9 24.23	27.9 34.16	1.29 10.40	3.9 15.14	6.29 10.3	24.35 40.23	5.35 20.15	5.40 39.7	11.23 17.23	7.3 13.26	5.35 2.34	1.1 11.38	1.2 9.37	13.7 25.9	13.22 26.37	6.1 28.35	11.7 32.28	1.2 6.10	40.36 6.10	6.10 7.26	36.13 25.22	1.3 10.26
5	R&D インターフェース	3.13 24.33	13.26 35.10	15.25 35.1	6.29 15.14	5.6 17.40	15.23 29.5	15.40 23.3	15.23 3.37	15.40 6.29	15.35 15.13	6.35 15.13	2.3 15.35	5.2 13.40	5.35 6.15	28.40 3.35	6.1 40.38	6.7 20.10	6.38 40.13	5.35 6.40	28.40 10.13	4.7 25.40	1.6 3.40
6	生産手段 仕様/能力/手段	23.29 35.4	5.2 27.1	5.6 20.35	24.35 10.3	5.6 17.40	5.6 3.10	15.23 21.15	15.40 35.22	1.35 17.35	6.27 22.6	3.25 22.6	7.13 13.22	15.35 13.22	35.5 3.2	10.25 3.33	13.10 1.24	5.6 17.2	6.10 10.12	6.10 2.27	10.2 10.2	5.15 35.25	13.32 15.23
7	生産手段 コスト	37.35 10.3	26.35 1.7	5.29 35.2	5.35 40.23	15.23 29.5	15.25 3.10	1.24 19.10	26.10 1.3	26.1 37.25	5.2 30.35	5.35 31.2	2.35 24.10	2.13 10.26	12.3 35.5	1.35 10.29	3.2 35.10	27.3 10.25	10.25 27.3	10.35 7.24	7.13 1.24	26.27 25.34	
8	生産手段 時間	35.6 10.2	10.2 6.15	7.26 10.15	5.40 20.15	15.40 23.3	1.35 21.15	1.24 19.10	26.10 15.6	10.27 38.20	10.15 5.17	5.7 16.3	5.2 35.13	3.10 23.40	13.2 35.10	23.12 3.24	1.35 10.38	3.13 25.5	35.29 5.4	35.29 13.25	13.9 26.23	13.1 37.17	13.15 23.25
9	生産手段 リスク	3.5 10.2	6.7 23.26	6.15 7.37	11.23 39.7	7.5 3.37	6.27 35.22	26.10 1.3	10.27 15.6	5.6 23.20	5.25 3.35	6.2 3.35	5.35 23.25	5.26 25.1	5.35 35.2	5.10 40.2	13.35 2.15	3.35 19.24	24.14 13.35	7.5 3.10	5.35 33.7	13.22 7.13	5.25 3.37
10	生産手段 インターフェース	5.7 37.1	15.35 10.25	25.23 35.29	7.3 17.23	28.40 6.29	3.25 17.35	26.1 37.25	10.15 38.20	5.6 23.20	6.2 37.40	5.30 10.15	5.35 6.13	23.33 5.26	33.5 2.26	23.11 40.2	23.10 3.13	23.13 10.1	10.14 2.25	10.40 6.10	40.33 10.40	7.5 4.13	5.2 4.13
11	供給 仕様/能力/手段	6.2 35.25	23.6 11.28	11.6 23.19	5.35 13.26	6.35 15.13	7.13 22.6	5.2 30.35	5.17 16.3	5.25 3.35	6.2 37.40	7.35 19.1	35.1 13.2	7.8 11.10	6.30 15.40	11.23 35.1	23.11 2.6	23.11 26.2	11.23 24.2	23.11 2.25	10.3 25.5	13.4 28.37	
12	供給 コスト	15.6 1.5	10.5 35	5.13 23.25	1.11 2.34	2.33 3.15	15.35 13.22	5.35 31.2	5.2 35.13	5.35 23.25	5.30 10.15	7.35 19.1	3.24 38.10	27.3 19.24	1.28 6.38	35.24 5.13	27.5 35.25	10.27 30.35	10.12 2.27	10.24 25.1	2.35 13.25	28.35 2.37	
13	供給 時間	2.3 12.26	10.19 35.22	10.25 7.2	1.2 11.38	5.2 35.10	35.5 13.22	2.35 24.10	3.10 23.40	13.22 25.1	5.35 6.13	35.1 13.2	3.24 38.10	10.29 15.13	5.19 3.15	25.10 29.19	25.27 10.2	27.2 13.35	10.25 35.6	24.5 35.25	35.13 25.1	28.2 37.32	
14	供給 リスク	11.39 30.31	11.13 2.16	23.7 29.2	13.7 9.37	5.35 13.40	15.16 3.2	2.13 10.26	13.2 35.10	5.26 35.2	23.33 5.26	7.8 11.10	27.3 19.24	10.29 15.13	5.10 25.37	1.35 6.24	1.35 5.27	19.10 10.5	2.27 10.7	24.25 2.13	5.35 2.3	25.22 15.6	
15	供給 インターフェース	11.26 2.5	10.38 13	11.7 40.38	13.22 25.9	28.40 6.15	10.25 3.33	12.3 35.5	23.12 3.24	5.10 40.2	33.5 2.26	6.30 15.40	5.19 6.38	5.10 3.15	5.10 25.37	10.31 24.35	5.10 26.1	29.30 2.25	5.25 10.9	5.25 38.40	5.6 39.24	13.25 37.28	
16	製品信頼性	36.11 2.35	27.6 1.10	6.10 3.35	6.1 26.37	6.1 3.1	35.23 1.24	1.35 10.29	1.35 2.15	13.35 40.2	23.11 35.1	11.23 5.13	25.10 29.19	1.35 6.24	10.31 24.35	2.25 10.35	2.25 25.10	13.22 10.35	13.22 10.35	28.25 5.7	28.25 7.22	10.28 3.25	
17	サポートコスト	15.35 28.25	6.1 10.25	7.15 40.26	11.7 28.35	6.7 40.38	13.10 17.2	3.2 35.10	3.13 25.5	3.35 19.24	23.10 3.13	23.11 2.6	27.5 35.25	19.10 5.27	5.10 26.1	2.25 10.35	5.4 25.10	5.4 25.10	27.35 25.14	26.25 37.3	28.25 37.3	28.3 17.37	
18	サポート時間	5.2 6.27	6.1 25.10	7.40 1.26	1.2 32.28	6.38 20.10	5.6 10.12	27.3 10.25	35.25 5.4	24.14 13.35	23.13 10.1	23.11 26.2	10.27 30.35	27.2 13.35	2.27 10.5	29.30 2.25	22.25 15.3	5.4 25.10	15.29 9.19	15.29 10.1	7.20 24.35	1.2 15.35	
19	サポートリスク	15.27 40.12	10.25 22.2	23.24 2.37	40.36 6.10	5.35 40.13	6.10 2.27	10.25 27.3	35.29 13.25	7.5 3.10	10.14 4.25	11.23 24.2	10.12 2.27	24.25 35.6	5.25 10.9	13.22 10.35	13.22 25.14	27.35 9.19	15.29 15.29	40.33 4.13	5.6 4.13	20.7 28.35	
20	サポートインターフェース	11.2 5.9	6.10 1.7	6.10 26.24	6.10 7.26	28.40 6.7	6.40 10.2	10.35 7.24	13.9 26.23	5.35 33.7	40.33 6.10	23.11 2.25	10.24 25.1	24.5 35.25	5.35 2.13	5.6 38.40	28.25 5.7	26.25 37.3	15.29 10.1	5.6 40.33	16.17 40.13	1.3 37.2	
21	消費者所得/要望/フィードバック	14.13 22.7	7.25 30.21	7.19 21.29	36.13 25.22	4.7 25.40	5.15 35.25	7.13 1.24	13.1 37.17	13.22 7.13	7.5 10.40	10.3 25.5	2.35 13.25	25.22 25.1	13.25 2.35	28.25 39.24	24.25 7.22	7.20 24.35	2.3 40.13	16.17 40.13	2.29 3.35		
22	情報量	37.13 25.10	37.25 28.2	7.2 37.20	1.3 10.26	1.6 3.40	13.32 15.23	26.27 25.34	13.15 23.25	5.25 3.37	2.37 4.13	13.4 28.37	28.35 2.37	28.2 37.32	5.37 15.6	3.6 37.28	10.28 3.25	28.3 17.37	1.2 15.35	25.3 28.35	1.3 37.2	2.29 3.35	
23	コミュニケーションフロー	6.25 31.29	6.18 37.13	18.19 18.19	30.6 31.4	2.6 35.3	6.2 13.25	6.35 37.18	2.37 18.19	25.38 3.26	2.28 3.37	5.25 23.10	35.6 1.27	6.31 25.35	6.16 13.35	10.28 13.4	25.1 37.3	6.31 28.32	29.31 2.35	2.3 6.2	29.31 15.18	2.37 3.4	
24	システムが受ける 右側要因	11.25 3.26	35.27 3.26	26.2 35.2	35.2 3.26	22.24 2.35	2.35 3.26	22.35 3.26	35.2 3.26	35.2 3.26	13.17 3.26	11.25 3.26	35.2 3.26	2.13 3.26	3.35 3.26	27.35 3.26	1.35 3.26	15.25 3.26	25.35 3.26	11.25 3.26	14.13 3.26	37.13 3.26	

【Hands-On Systematic Innovation for Business & Management】2007 by Darrell Mann

40 Inventive Principles

NO	Invention principle
1	Division (Segmentation)
2	Separation (Taking Out/Separation)
3	Local nature (Local Quality)
4	Asymmetry (Asymmetry)
5	Annexation (Merging)
6	Generality (Universality)
7	Nest ('Nested Doll')
8	Balance (Counter-Balance)
9	Advance reaction (Prior Counter Action)
10	Advance action (Prior Action)
11	Prior protection (Prior Cushioning)
12	Removal of tension (Remove Tension)
13	Reverse-conception (The Other Way Around)
14	Curved surface (Curvature)
15	Dynamics (Dynamization)
16	Many are about slightly, few, and slightly (Slightly Less/Slightly More).
17	Another dimension (Another Dimension)
18	Resonance (Resonance)
19	Periodic action (Periodic Action)
20	Continuance of useful action (Continuity of Useful Action)

NO	Invention principle
21	Fast execution (Hurrying)
22	The misfortune is changed and it does to [**] (Blessing in Disguise).
23	Feedback (Feedback)
24	Mediation (Intermediary)
25	Self service (Self-Service)
26	Copy (Copying)
27	Cheap short longevity (Cheap Disposable)
28	Another perception substitution of mechanism (Another Sense)
29	Liquidity air pressure and hydraulic pressure (Fluidity)
30	It is thin, and it a flexible is flexible husk and thin film (Thin and Flexible).
31	Porous material (Holes)
32	Color variation (Colour Changes)
33	Homogeneity (Homogeneity)
34	Exclusion and reproduction (Discarding and Recovering)
35	Change in parameter (Parameter Changes)
36	Phase change (Paradigm Shift)
37	Heat relative change expansion (Relative Change)
38	Strengthened strong [i] oxidant of atmosphere (Enriched Atmosphere)
39	Calm no revitalization atmosphere of atmosphere (Calm Atmosphere)
40	Composite structure composite materials (Composite Structures)

Creation of "New item and service" system 【Stage3】

Set of hypothesis of < contradiction solution and "New item and service" system (idea) > case

Characteristic that is improved and improved

A parts supplier overseas (China) at the right time procures parts from the subcontract enterprise in Japan.
⇒13Supply and time

Invention principle and subprinciple

Principle 15. Dynamics (Dynamization)
C.If the system the object process is inflexible, it has adaptability and it keeps flexible.

Principle 10. Advance action (Prior Action)
A.The demanded change is introduced into the system or the object (To a partial target enough) before it is needed.

Characteristic in which it conflicts

It takes time from the order of each subcontractor for parts to ordering and the delivery procedure.
⇒27Adaptability/flexibility

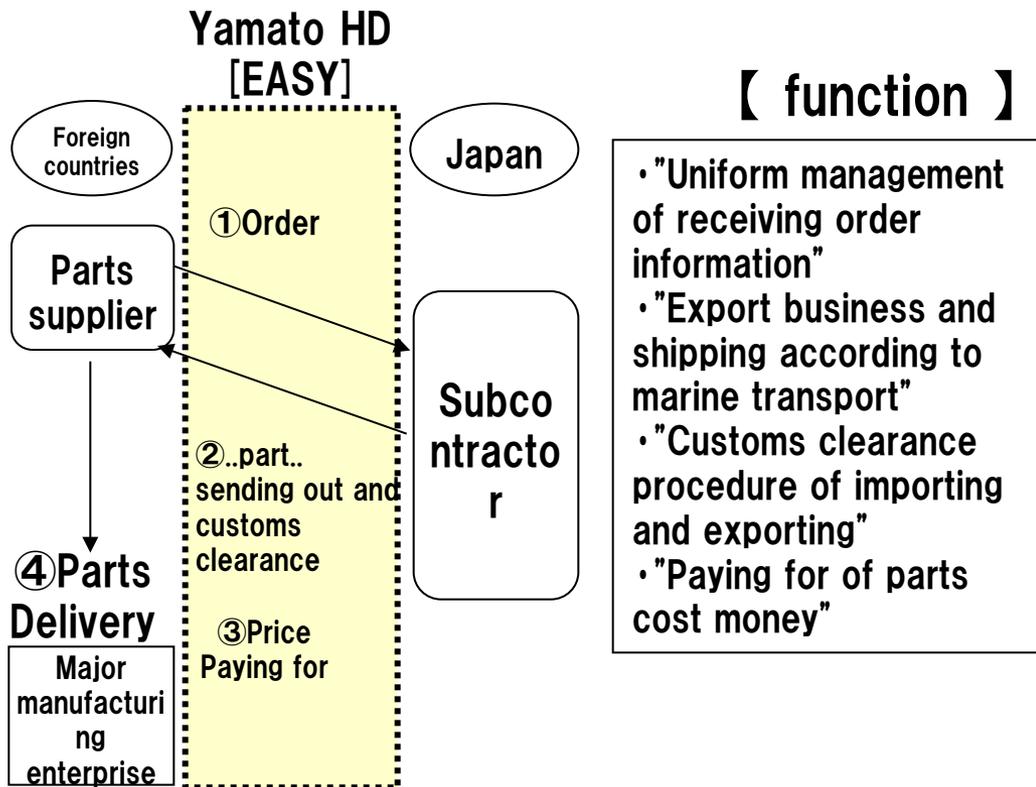
Contradiction solution (idea level)

①It changes it from the receiving order for couple 1 of the parts supplier and the subcontractor into the relation of 1-to-many.
②The receiving order, the collection and delivery, the delivery date, the tariff procedure, and the price payment collection are unified.

③The parts supplier inputs serial numbers of parts necessary for a special system, and it registers, and when ordering, a necessary amount and the delivery date are input.

4. "New item and service" Comparison between system and contradiction settlement plan 【 verification of hypothesis ① 】

Global procurement support system



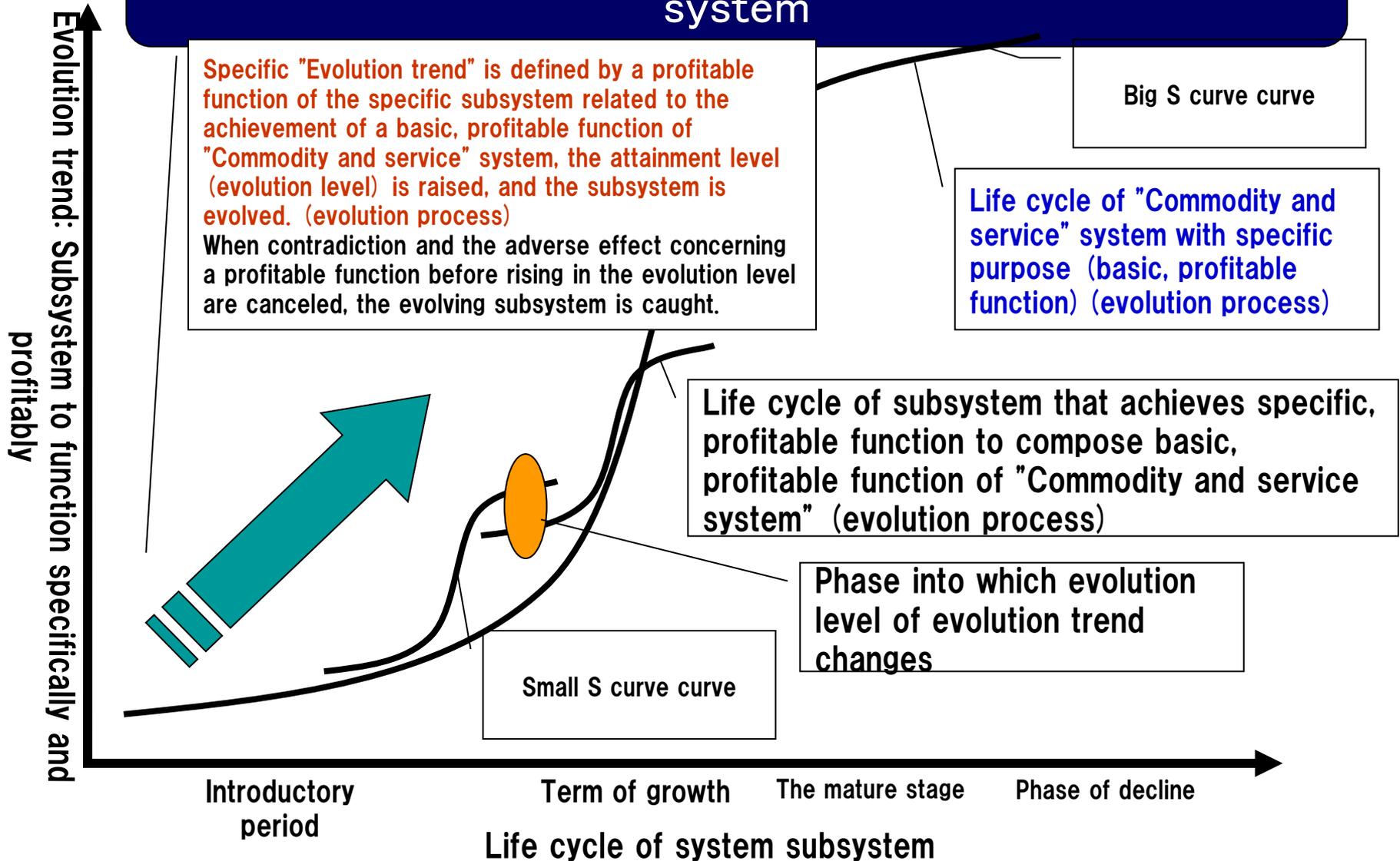
Hypothesis setting (solution of contradiction)

- ① It changes it from the receiving order for couple 1 of the parts supplier and the subcontractor into the relation of 1-to-many.
- ② The receiving order, the collection and delivery, the delivery date, the tariff procedure, and the price payment collection are unified.
- ③ The parts supplier inputs serial numbers of parts necessary for a special system, and it registers, and when ordering, a necessary amount and the delivery date are input.

5. Relation between life cycle and evolution trend of system

- Relation between life cycle and evolution trend of system
 - ◆ Design of method of medication
- 【hypothesis ②】..drinking.. verification
 - ◆ Analysis of “Commodity and service” system that evolves along evolution level (reverse)

Relation between life cycle and evolution trend of system



Life cycle of "Commodity and service" system 【 S curve curve 】

- It is thought that the evolution process from the possession also of "Commodity and service" system of similar man's life cycle, and the birth to the disappearance exists.
- The life cycle is displayed by using S curve, and it is called, "S curve curve" usually. A horizontal axis is assumed to be "Time axis" and the function and system characteristics are set to the spindle.
- When the function is taken in the spindle, the "Commodity and service" system to function will improve the ideal according to S curve.
- ⊗ **Specific "Evolution trend" is defined by a profitable function of the specific subsystem related to the achievement of a basic, profitable function of "Commodity and service" system, the attainment level (evolution level) is raised, and the subsystem is evolved. (evolution process)**
- ⊗ **When contradiction and the adverse effect concerning a profitable function before rising in the evolution level are canceled, the evolving subsystem is caught.**

Evolution trend																										
1. Customer expectation	17. Removal of boundaries	<div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center; margin-bottom: 10px;">Evolution trend and evolution level</div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #ffffcc;">・一次産品</td> </tr> <tr> <td style="background-color: #add8e6;">・製品</td> </tr> <tr> <td style="background-color: #ffcc99;">・サービス</td> </tr> <tr> <td style="background-color: #ccffcc;">・経験</td> </tr> <tr> <td style="background-color: #ff99cc;">・変革</td> </tr> <tr> <td style="background-color: #00b050;"></td> </tr> <tr> <td style="background-color: #cccccc; text-align: center;">2. 顧客の購入の焦点</td> </tr> <tr> <td style="background-color: #ffffcc;">・性能</td> </tr> <tr> <td style="background-color: #add8e6;">・信頼性</td> </tr> <tr> <td style="background-color: #ffcc99;">・便利さ</td> </tr> <tr> <td style="background-color: #ccffcc;">・価格</td> </tr> <tr> <td style="background-color: #00b050;"></td> </tr> <tr> <td style="background-color: #cccccc; text-align: center;">3. 自己組織化に対する認識</td> </tr> <tr> <td style="background-color: #ffffcc;">・自己組織化の無自覚</td> </tr> <tr> <td style="background-color: #add8e6;">・自己組織化を自覚</td> </tr> <tr> <td style="background-color: #ffcc99;">・ガイドされた自己組織化</td> </tr> <tr> <td style="background-color: #ccffcc;">・自律的な自己組織化</td> </tr> <tr> <td style="background-color: #ff99cc;">・自律的な能力成長(自己創出)</td> </tr> <tr> <td style="background-color: #00b050;"></td> </tr> <tr> <td style="background-color: #cccccc; text-align: center;">4. 知識</td> </tr> <tr> <td style="background-color: #ffffcc;">・データ</td> </tr> <tr> <td style="background-color: #add8e6;">・情報</td> </tr> <tr> <td style="background-color: #ffcc99;">・知識</td> </tr> <tr> <td style="background-color: #ccffcc;">・知恵</td> </tr> </table>	・一次産品	・製品	・サービス	・経験	・変革		2. 顧客の購入の焦点	・性能	・信頼性	・便利さ	・価格		3. 自己組織化に対する認識	・自己組織化の無自覚	・自己組織化を自覚	・ガイドされた自己組織化	・自律的な自己組織化	・自律的な能力成長(自己創出)		4. 知識	・データ	・情報	・知識	・知恵
・一次産品																										
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2. 顧客の購入の焦点																										
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・知恵																										
2. Focus of purchase of customer	18. Trim																									
3. Recognition to self-assembler	19. Control																									
4. Knowledge	20. Hierarchy of needs																									
5. Ability	21. A decrease in man's																									
6. Process idea	22. Interaction with another																									
7. Strength of system	23. Listen/communication																									
8. Mono-ivory shell jackrabbit (similarity)	24. Strengthening of asymmetric																									
9. Mono-ivory shell jackrabbit (diversity)	25. Marketing research																									
10. Mono-ivory shell jackrabbit (increase of difference)	26. Adjustment of action																									
11. Division	27. Adjustment of rhythm																									
12. A decrease in decline	28. Viewpoint of design																									
13. Improvement of use of various senses	29. Nonlinear																									
14. Increase of transparency	30. Structural evolution																									
15. Degree of freedom	31. Improvement of flexibility																									
16. Connection	32. Vertical/horizontal boundaries																									

Evolution trend: [Hands-On Systematic Innovation for Business & Management]2004 By Darrell Mann

MRA knowledge creation society translation (2007)

Big S curve curve and small S curve curve (example)

Evolution trend: "Aspect of purchase of customer" (The use level of delivering to home is improved).

The evolution trend is "Aspect of the purchase of the customer. The definition of the trend (profitable function of the subsystem) is assumed to be "The use level of delivering to home is improved".
A small S curve curve is formed with the rise of the attainment level of this profitable function "The use level of delivering to home is improved" (evolution level).

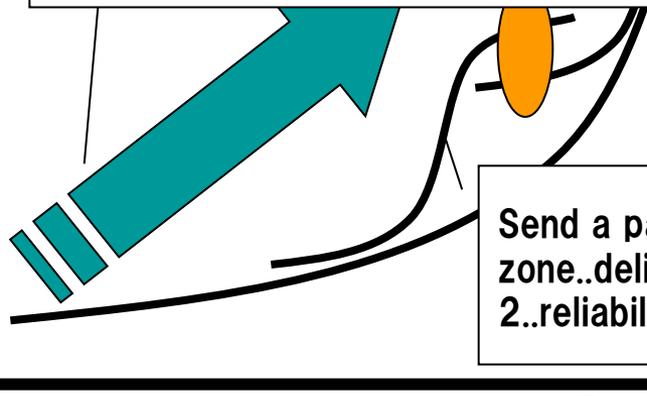
"The package is delivered" system as a big S curve curve.

Evolution trend "Aspect of purchase of customer"

- Evolution level 1: Quality
- Evolution level 2: Reliability
- Evolution level 3: Convenience
- Evolution level 4: Price

The receiver cannot stay at home at specified time of the sender and the package is delivered again. The receiver is neither revokable, should not be told the time of delivering to home beforehand, and wait for the receipt time zone. The system "Takkyubin (home delivery service) mail notification service" is developed as a system that solves the contradiction related to the adverse effect that such a present sender specification time zone delivery causes, and the evolution level rises. (..level 3.: convenience.)

Send a package..specification..time..receiver..deliver..time zone..deliver..service..system..level
2..reliability..evolve..system..develop..demand..situation..provide..continue.



Introductory period

Term of growth

The mature stage

Phase of decline

Life cycle of system subsystem

【 hypothesis ② 】 verification

Analysis of "Commodity and service" system that evolves along evolution level (reverse)

- "New item and service" system turned on to the market is caught in the passing age. Those contents raise the evolution level of a specific evolution trend. The event that it is contents obtained by that is found.
- The evolution level of the evolution trend is raised if this can be found and there is a possibility that the hypothesis of contents of the future "New item and service" system can be set.

【 hypothesis ② 】 verification

Analysis of "Commodity and service" system that evolves along evolution level (reverse)



Event that pays attention to evolution trend "Degree of freedom"

- Definition of evolution trend "Degree of freedom":
 - ⌘ 【 The connection of the person who is related to the package delivery is expanded 】
- The level of degree of freedom is found and 【 two degree of freedom 】, 【 three degree of freedom 】, and "Commodity and service" systems that raise it can be found from 【 one degree of freedom 】 in the passing age.
- The following services can be caught by raising degree of freedom as service of delivering to home thought to be a creation.
 - ⌘ 【 one degree of freedom 】 The package is delivered by the convenience of the courier service ("Beginning of delivering to home" in 1976) ⇒
 - ⌘ 【 two degree of freedom 】 + sender participates in delivering to home, and the receipt time is specified ("Time zone delivery service" in "Curb service at nighttime" in 1988 and 1998) ⇒
 - ⌘ 【 three degree of freedom 】 Delivering to home is requested directly from + driver ("Driver direct service" in 2004) ⇒
 - ⌘ 【 four degree of freedom 】 + receiver participates in delivering to home, and the receipt place and time are specified ("Delivery at shelter destination of stricken area" in "Courier service e-information series" in 2005 and 2011) ⇒
 - ⌘ 【 five degree of freedom 】 + ?

"Commodity and service" system that evolves along evolution level (event)

❖one evolution trend 15 "Degree of freedom": 1 degree of freedom ⇒ 2 degree of freedom ⇒ 3 degree of freedom

⊗Related person : Courier service ⇒ + those who send it out ⇒ + driver ⇒ + receiver ⇒ + ?

進化トレンド 15 自由度	・1つの自由度	・2つの自由度	・3つの自由度	・4つの自由度
開発された商品・サービス	1976年 「宅急便」を開始(関東一円)	1988年 夜間お届けサービス開始	2004年 ドライバーダイレクト開始	2011年 震災後、被災者の避難先まで配達
		1998年 時間帯お届けサービス開始	2005年 宅急便e-お知らせシリーズスタート	Evolution

⊗Choices of service : Region ⇒ + size ⇒ + kind ⇒ + time ⇒ + optional function ⇒ + ?

進化トレンド 15 自由度	・1つの自由度	・2つの自由度	・3つの自由度	・4つの自由度
開発された商品・サービス	1983年 宅急便エリア拡大	1988年 サイズ拡大	1983年 スキー宅急便	1988年 夜間お届けサービス開始
	1997年 全国ネットワーク完成	1994年 サイズ拡大	1984年 ゴルフ宅急便	1998年 時間帯お届けサービス開始
	1987年 UPS宅急便	Expansion of commodity and service		2004年 ドライバーダイレクト開始
			全国展開	

6. Method of approaching "New item and service" system creation with axis in the future

【Stage1】 Specific of business (business) as analytical object
【Stage2】 Association analysis of transition of market and "Commodity and service" system

【Stage3】 Contents making of "Contradiction (dilemma demand) discovery and solution that user holds" and "New item and service" systems

Pattern ②
【Stage1·2·3·4·5】

Pattern ①
【Stage1·2·4·5】

【Stage4】 "Commodity and service" Evolution trend of system and analysis of evolution level

【Stage5】 Contents making of rising setting at evolution trend and evolution level and "New item and service" systems

- ① Setting of hypothesis of evolution level rise of evolution trend and "New item and service" system
- ② Condition of super-system and making of contents refinement
- ③ Contents making and link of subsystems

Creation of "New item and service" system [Stage4] "Commodity and service" Evolution trend of system and analysis of evolution level

- To which trend of the evolution trend of 32 (Darrell Mann advocacy) did the settlement plan of the contradiction caused by no adjustment of "Commodity and service" system and needs of the user offered to the market pay attention? Moreover, at which evolution level the target was squeezed is examined.
- The relating evolution trend was selected from the function and the characteristic related to the achievement of "Commodity and service" system. Moreover, the meaning of the evolution trend is defined.
- How the meaning of an individual trend of evolution is defined becomes a key.
- The assumption of the evolution level is different according to the definition of the evolution trend.
- ⊗ **【 pattern ① Stage1·2·4·5 】**
 - ❖ The evolution trend that extracts the function and the characteristic from "Commodity and service" system that has already been offered to the market and corresponds is specified.
- ⊗ **【 pattern ② Stage1·2·3·4·5 】**
 - ❖ It was able to be confirmed that the idea of the contradiction solution was effective for the formation of the concept of "New item and service" system. The evolution trend that extracts the function and the characteristic from the idea of this contradiction solution and corresponds is specified.

Creation of "New item and service" system 【Stage4】
 Evolution trend and level (analysis) of "Commodity and service" system of <> cases

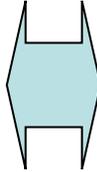
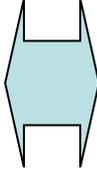
The order was received and ..【.. integrated with transportation, the delivery, and the tariff procedure. Global procurement support 】 System (present)

- 【 specified evolution trend 】**
- 2. Focus of purchase of customer
 - 4. Knowledge
 - 17. Removal of boundary
 - 21. A decrease in man's relations
 - 26. Adjustment of action

- 【 content of definition of evolution trend 】**
- Definition:【 Service is bought 】
 - Definition:【 Information is united with distribution 】
 - Definition:【 The range of transportation is expanded 】
 - Definition:【 Human work is reduced 】
 - Definition:【 The purchaser is adjusted with the order person's behavior 】

- 【 specified evolution level 】**
- Level 3【 convenience 】
 - Level 3【 knowledge 】
 - Level 2【 small number of limits 】
 - Level 4【 man + automation tool 】
 - Level 2【 partial adjustment action 】

- 【 content of definition of evolution level 】**
- Definition:【 It receives and integrated service of the order and distribution is performed 】
 - Definition:【 Receiving order information and distribution information have been integrated 】
 - 【 The definition: The hub function of the parts supplier and the subcontract enterprise is made. **[Teiru]** 】
 - Definition:【 Individual receiving ordering is automated 】
 - Definition:【 It is ..delivery date management of distribution.. thorough 】



Creation of "New item and service" system 【Stage5】 Contents making of rising setting at evolution trend and evolution level and "New item and service" systems

① Setting of hypothesis of evolution level rise of evolution trend and "New item and service" system

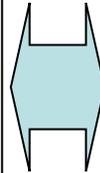
- The content of the definition of a high-ranking level is decided by applying the evolution trend to the settlement plan of the contradiction caused by no adjustment of "Commodity and service" system and needs of the user offered to the market, specifying the evolution level, and raising the evolution level.
- And, contents of "New item and service" system are created by combining content of the definition, and making it to the refinement.

Creation of "New item and service" system 【Stage5】
 Rise of < evolution level and "New item and service" Creation (development) > case with system

【 global procurement support that receives and integrates order with transportation, delivery, and tariff procedure 】Evolution system of system

【 specified evolution trend 】

- 2. Focus of purchase of customer
- 4. Knowledge
- 17. Removal of boundary
- 21. A decrease in man's relations
- 26. Adjustment of action



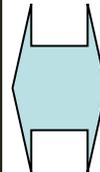
【 content of definition of evolution trend 】

- Definition:【 Service is bought 】
- Definition:【 Information is united with distribution 】
- Definition:【 The range of transportation is expanded 】
- Definition:【 Human work is reduced 】
- Definition:【 The purchaser is adjusted with the order person's behavior 】

【 evolution level of title 】

- Level 4【 price 】
- Level 4【 wisdom 】
- Level 3【 boundary none 】
- Level 5【 automation tool 】

- Level 3【 complete adjustment action 】



【 content of definition of evolution level 】

- Definition:【 The price is set according to the amount of the treatment 】
- Definition:【 The possibility of procurement is forecast 】
- Definition:【 The delivery date has been shortened by automatic optimization of the delivery route. 】
- Definition:【 The supply chain is surely secured 】

【 global procurement support that receives and integrates order with transportation, delivery, and tariff procedure 】 Evolution system of system (case)

< hypothesis setting ("New item and service" system) by raising level of evolution trend >

⊗ **Securing of new supply chain when supply chain cuts it due to unexpected accident. And, the delivery of a new procurement destination is served to the customer for it for the dissemination and a short time.**

In the consideration case,

- Trend 4【 knowledge 】 was defined in level 4 as 【 wisdom 】 and 【 The possibility of procurement is forecast 】. Moreover, trend 26【 adjustment of the action 】 was defined in level 3 as 【 complete adjustment action 】 and 【 The supply chain is surely secured 】.
 - ⊗ "Possibility forecast system that secures a new procurement destination when a regular supply chain is cut" can be assumed from these.
- Trend 17【 removal of the boundary 】 was defined in level 3 as 【 the boundary none 】 and 【 The transportation networks in the sea, empty, and the land have been integrated 】. Moreover, trend 21【 decrease in relations with man 】 was defined in level 5 as 【 automation tool 】 and 【 The delivery date has been shortened by automatic optimization of the delivery route 】.
 - ⊗ "System that secures the delivery net for a short time by automatic optimization of integration and the delivery route of the transportation network" can be assumed from these.
- Some scenarios are made in consideration of the content of the definition, and it evaluates and it will select it like this.

Creation of "New item and service" system 【Stage5】 Contents making of rising setting at evolution trend and evolution level and "New item and service" systems

②Condition of super-system and making of contents refinement

- The future change factor of a super-system is found.
- The condition of the market (super-system) because of the idea (system) that waits for commercialization being made an embodiment (characteristic) is found.
- The achievement condition of "New item and service" system is set from the condition of the market.
- The hypothesis of "New item and service" system is made a refinement.

Creation of "New item and service" system 【Stage5】 Contents making of rising setting at evolution trend and evolution level and "New item and service" systems

③ Contents making and link of subsystems

- To achieve contents of "New item and service" system for the next term, the evolution of the subsystem as the relating subordinate position structure is demanded. The subsystem that should be evolved is specified, and the possibility of achievement will be examined.

⊠ In the case, the following content is thought as a subsystem that should be examined.

- Accumulation of investigation of part procurement destination by the country for supply chain securing and foreign countries and technical intelligence and maintenance of information network
- Maintenance of distribution net and physical distribution base
- Construction of transport links forecast system

Creation of "New item and service" system [Stage4・5]
 Rise of < evolution level and "New item and service" Creation (development) > case with system

Global procurement support system that receives and integrated order with transportation, delivery, and tariff procedure

⊗ Setting of hypothesis of the future "New item and service" system created from evolution trend (idea level)

[The evolution trend is an evolution trend of 32 of Durrell man]

[direction of forecast evolution (evolution to high-ranking level)]

2. The focus of the purchase of the customer buys service.

Convenience performs integrated service of receiving and the order and distribution in level 3 The price is set by four ⇒ level prices according to the amount of the treatment.

4. The knowledge information and distribution are united.

Knowledge has integrated receiving order information and distribution information in level 3 The possibility of procurement is forecast by four ⇒ level wisdoms.

17. The removal of the boundary expands the range of transportation.

Level 2..small number of..limit..parts supplier..subcontract..enterprise..hub..function..level..boundary..sea..land..transportation network..integrate.
 It is made.

21. A decrease in man's relations reduces human work.

Five ⇒ level automation man + automation tool tool that automates individual receiving ordering has shortened the delivery date in level 4 by automatic optimization of the delivery route.

26. The adjustment of the action adjusts the behavior of the purchaser and those who receive an order.

The partial adjustment action persists in the delivery date management of distribution in level 2 ⇒ level 3 complete adjustment action surely secures the supply chain.

< hypothesis setting ("New item and service" system) by raising level of evolution trend >

⊗ **New supply chain when supply chain cuts it due to unexpected accident
 Securing. Delivery service of new procurement destination for
 dissemination and a short time to customer for it**

Construction of subsystem

1.Accumulation of investigation of part procurement destination by the country for supply chain securing and foreign countries and technical intelligence and maintenance of information network

2.Maintenance 3 of distribution net and physical distribution base . Construction of transport links forecast system

7. Approach for fiscal year 2014 to deepen content of frame of "New item and service" system creation

- An explanation of the content of the definition of the evolution trend of the Darrell Mann advocacy and the content of the definition of the evolution level as comprehensible as possible is made.
(evolution trend explanation of 32: Business and chapter of management TRIZ research subcommittee meeting)
- "Evolution trend explanation of 32: the business and the chapter of management TRIZ research subcommittee meeting" is applied to some "Commodity and service" systems of "Business of delivering to home" taken up by this analysis, and the refinement of the content of the explanation and the method of medication is aimed at.
- As a result, contents of the frame of "New item and service" system creation presented this time are deepened.

How about joining the Business and Management TRIZ Research Subcommittee?

- ❖ **Please participate in the research subcommittee meeting, and present various topics of research.**
 - The theme that researches can be brought in without reserve.
 - The research area and the theme extend naturally if the number of members increases.

- ❖ **There is a result outlet of research activities, and the business use of the result can be expected.**
 - Because it is a cooperation of labor research, awareness and a new finding can be expected to be obtained.
 - Study results can be announced in the TRIZ symposium.
 - Can it notice during the research, and the use of cultivated TRIZ idea and tool to practice be expected.

- ❖ **About the management of the society**
 - Member individual's result of review and idea are brought together in the meeting.
 - It becomes a meeting at half a day once every 1-2 months.
 - A basic venue becomes Tokyo.
 - **The inquiry concerning the research subcommittee meeting**
Thank you very much even to Japanese TRIZ society (info@triz-japan.org).

Thank you for your attention

**Business and Management TRIZ Research Subcommittee
Japan TRIZ society, NPO**