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CO-INVENTION - A NEW WAY TO INVENT

Federico Bilotti

The European Co-Invention Team, part of Ethicon Endo-Surgery, believes that a new and effective way to invent is to work together in a small team - one engineer and one surgeon.

The symbol that we have taken to represent this approach is Leonardo's "Vetruvian Man". In this image, one can see how the human being can be shown as fitting into both a square and a circle. The square, to us symbolizes the engineer with a well-defined approach to solving problems. The circle represents the surgeon with his more free and innovative way of thinking.

The ideas that are received by the co-invention team, we subdivide into two types - the patentable and the non-patentable. The non-patentable ideas are those, which for example fall into the category of product improvement - changing color and/or size of already existing devices. All these extremely important feedbacks on existing products and procedures are managed by our marketing organization. These non-patentable ideas are passed on to our marketing representative who filters it through three basic criteria:

- 1) Does this idea increase the product usage?
- 2) Does it improve the clinical outcome?
- 3) Does it speed up the procedure?

If the answer to one of those questions is yes, then the idea can be implemented into the next phase of product improvement.

If the idea on the other hand is patentable, then the inventor can speak to one of two groups:

A) Co-Invention Team:

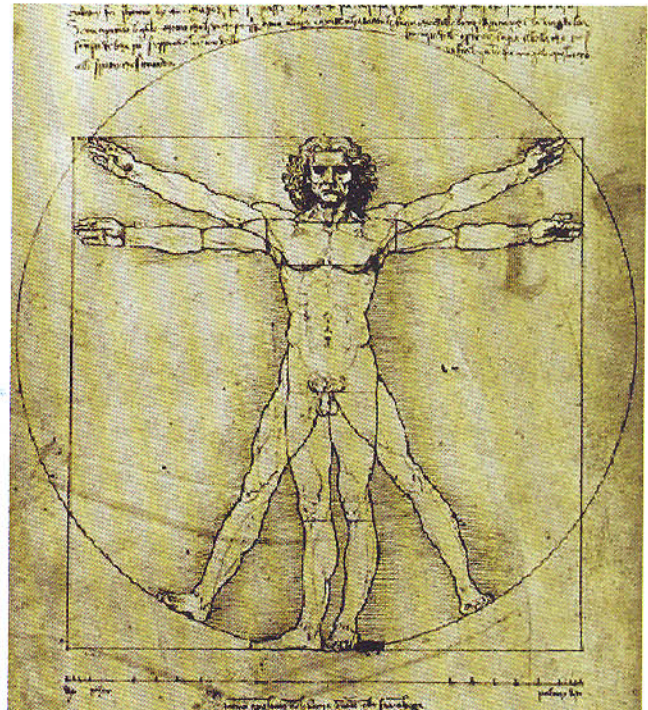
Our group is interested in developing this basic idea and to validating the technical, clinical and business aspects

B) Business development:

They are interested in license & acquisition of already validated concepts, e.g. finished products.

Let's go back to how the FD or BD group decide whether the idea is of interest to the organization. Our three filtering questions are:

- 1) Does this idea allow earlier cancer diagnose?
- 2) Does this idea allow for earlier release of patients?
- 3) Does this idea allow a change in the site of care?



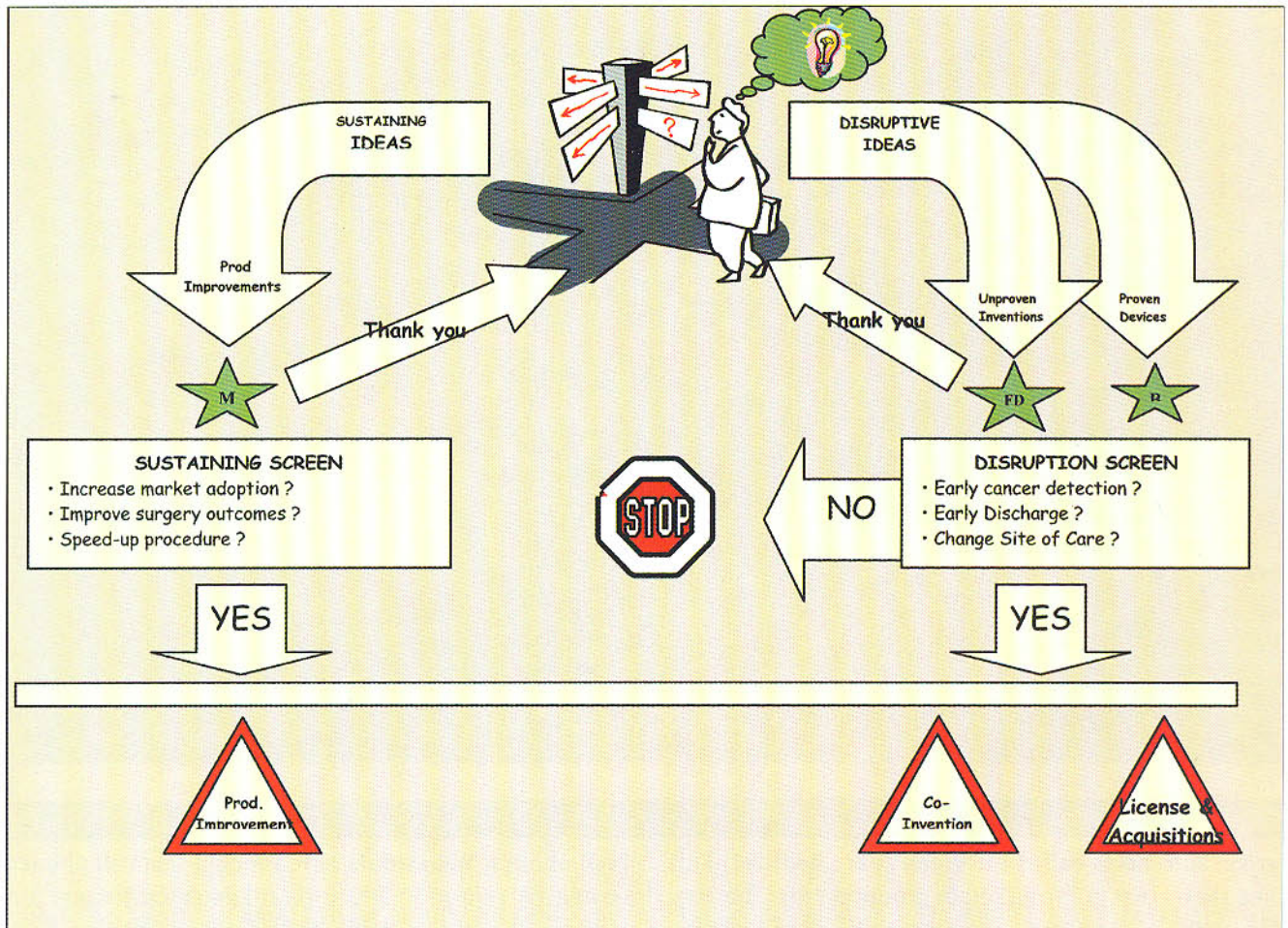
If the answer to one of the three questions is a yes, then the patentable idea, whether it is to be developed or already is developed, will be taken into consideration for a co-invention activity or a license & acquisition activity.

We will focus on the description of a co-invention activity.

Since 1991, in Europe we receive 100 idea submissions per year. Out of these 100, we identify one, which can pass the filters and initiate a co-invention activity for. We have also come to the conclusion that it takes three co-inventions, to create one product in Europe.

To transform the patient care through innovation, the mission of our company, we believe that one engineer + one clinician, is the most effective way to invent. And the inventions are the basis for the innovations of the future. We also believe that procedure and device technique, high unmet clinical needs, are the basis for successful inventions. The start-up, ultimately, of four to five engineers, business and clinical experts, is the most effective group size. The three aspects that this

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start-up team, also called co-invention team, has to focus on are

- 1) The clinical efficacy of the idea
- 2) The technical feasibility
- 3) The financial value

We are also looking at Clayton Christensen’s graph, which displays the focus of disruptive innovation in any given industry.

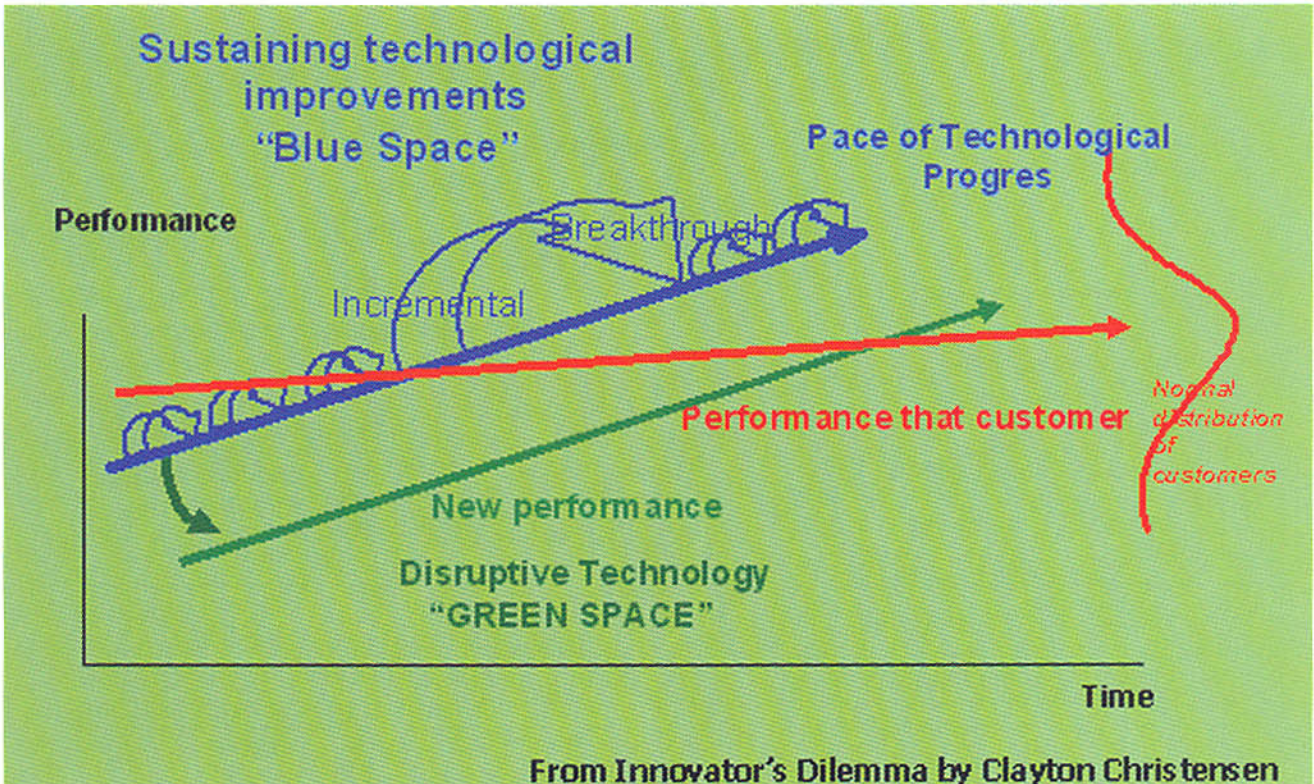
In this graph, the y-axis represents the performance and the x-axis identifies time, one sees a red line moving slightly upwards in time as performance increases. This means that in time, customers are used to utilize and pay for higher performance. There is a rate of growth of this line, which is acceptable for the customer. A tolerance level is visible and depicted in parallel lines. The high tolerance line, depicts that high-demanding customers are willing to pay more for higher performing products and the lower parallel line shows that less demanding customers are willing to pay less for lesser-performing products. This means that not all customers are willing to pay for all the performances of a given device.

A new line can be shown in blue, which shows how the pace of technology progress could be higher than what

the customer can absorb and the rate of increase of this line is given by the incremental break-throughs. If this improvement growth surpasses the more-demanding customers ability to absorb, we say that this device with the incremental break-throughs, is exiting from the customers sphere of product purchase capability. This product can no longer be bought or absorbed by the average customer. So for example, if we allow copy machines to get bigger and bigger, and provide features which are more and more expensive, there will come a time, when technological progress of copying machines will fall out of the range of the customers and customers will stop buying those machines, unable to afford them.

Telephones! For example, features added on cell phones: camera, calendar management, mp3 players, and navigators. Telephones become more and more expensive with these added features and if they surpass a certain absorption limit, for example € 1000 per cell phone, these cell phones will no longer be a device of choice.

Other examples can be seen in various products, which increase their cost by providing useful technological progress, useful performance but fall out of the economical range of the customer.



A last line, which is shown on this graph, is in color green and this is called the green space depicter. This line shows that in time, certain products enter the market with less features (performance) than existing devices, meaning that they barely provide the features required by the less-demanding customer. But in time, their performance improves. Slowly the green line crosses the red line, meaning that the average customer will start buying it.

For example, if in the past copy machines were believed to be the only product to be purchased because they had that required number of performances, all of a sudden, table-top copy machines appeared, very simple ones making only one copy at a time. Certainly they had less performance than the big and expensive copy machines, but in time desktop copy machines provided the necessary features that the customer demanded and changed or disrupted the way in which a customer considered the device. Customers in time stopped purchasing the high-performing expensive copy machine.

The same thing happened for the lap-top computers. Who ever thought of lap-tops being the product of choice, when ten years ago, lap-tops could only manage word processing and allow us to write letters. Computers were seen as large equipment the size of today's servers, capable of managing data in a much more effective way than lap-tops could ever do. But in time, these lap-tops added performance and now they have disrupted the computer market, now more people are

buying lap-tops than ever before. Another example is cell phones. Who would have thought that cell phones could be sold at _ 500 a piece? Now customers are willing to pay this price because performances have been such that they have become competitive to the earlier stationary telephones. Stationary telephones have become the dinosaurs, technology progress have caused them to become surpassed. Cell phones could also have the same development and the lesson that Clayton Christensen is teaching us is to continuously disrupt, continuously revolutionize our own devices because if we don't, someone else will.


My intent with this presentation is to solicit surgeons with innovative ideas to come and approach the Ethicon Endo-Surgery Co-invention team. We are interested in co-inventing surgeons who have a passion to improve clinical outcomes, to participate in teamwork, who are capable of meeting unmet needs and solutions. Successful professionals who are interested in finding time to co-invent with us, and surgeons who are non-traditional.

One way of submitting ideas to our organization is to go to the Internet site www.eesideacenter.com, accessing the window under submitting ideas and choose manual submission. This allows the inventor to print out the forms, which give him the opportunity to submit his idea to our European team.

The successes that we can count and which prove the co-invention approach successful are many, among

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2002



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Welcome to the IdeaCenter

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Many of the advances made at Ethicon Endo-Surgery, Inc. (EES) have come from you—the physicians, nurses, healthcare workers, and researchers—who know and use our products. We understand that healthcare professionals and inventors alike have demanding schedules, and that the invention process can be challenging without help. EES offers the IdeaCenter as an easy way for you to review the steps in developing an idea and submit your ideas to us.

Whether you have a suggestion for improving a product already on the market, or you have an entirely new invention, we can help you to bring your ideas to life. The IdeaCenter enables us to work with healthcare professionals so that, together, we can continue to advance patient care through innovation.

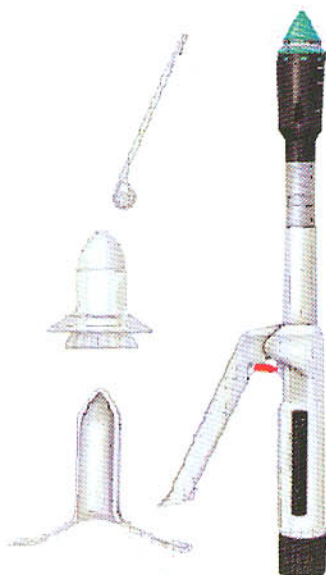


Have a patent?
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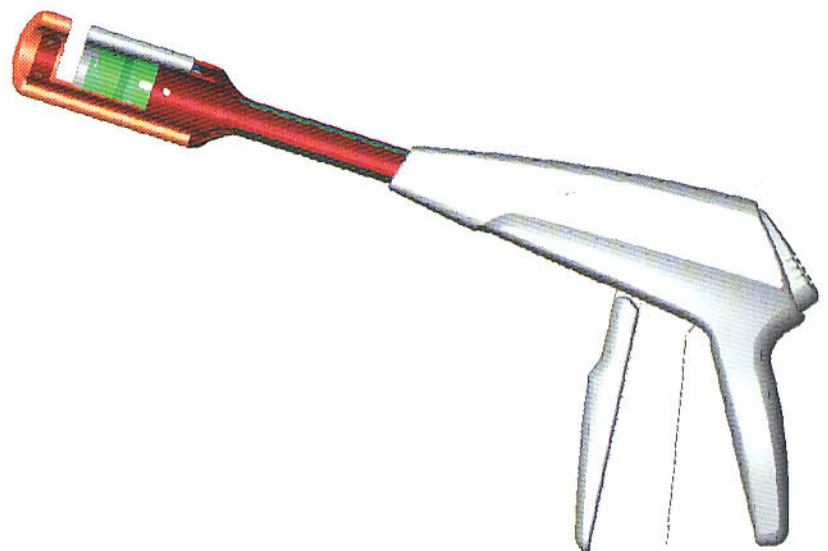
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these the European team can be proud of a device for the use of mammotome with x-ray diagnostic systems, a device for the treatment of hemorrhoids, called PPH, a device for the diagnose of defecation obstruction syndrome, called Tulip and a device for LAR called CCS.

The conclusion is co-invention team works the way Leonardo da Vinci thought of it, looking at the environment, soliciting idea submissions, developing solutions for high clinical unmet needs and a start-up approach. All these are key elements in a successful innovation approach.



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